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THE

PERCEPTIONALIST

OR

MENTAL SCIENCE

A University Text-Book

BY

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PREFACE.

1886.

THIS volume is a response to advice and encouragement given the author by several eminent professors, and also the execution of a purpose partially entertained at the time of the publication of his former book, "The Human Mind." The discussions in that treatise, in order to justify peculiarities of doctrine, are frequently extended and minute. It was proposed, in case the work met with favor, to reproduce its chapters in a simpler form. The author need hardly say that the reception accorded "The Human Mind" has surpassed his highest expectations.

"Mental Science," therefore, is now offered as an educational manual, and as a compend for the reading of those who would inform themselves respecting the doctrines of an earnest philosophy without entering upon non-essential details. The majority of the discussions have been not merely abridged, but simplified; a considerable number have been entirely rewritten. Some chapters, too, which are devoted to logical questions, and which may prove serviceable in connection with some future effort, have been omitted. It has, however, been the aim to present a true theory of every normal activity of the intellect.

In order to assist the eye in that work of review which is a condition of all thorough scholarship, teachers will perceive that italics have been employed more freely than would otherwise be desirable. They will also notice that ten out of the fifty chapters into which the treatise is divided have been printed in small type. The dissertations thus marked are not deemed absolutely indispensable to a course in psychology. They are, however, as interesting as any others in the book, and they have no peculiar difficulty.

The general system of doctrine in the service of which both "The Human Mind" and "Mental Science" have been composed, might be styled PERCEPTIONALISM. For some such term may properly designate a form of philosophy which maintains, from an analytical and theoretical point of view, *that mankind are not deluded in claiming that they perceive fact and truth, and that what they call their perceptions are true perceptions of those very things which they say that they perceive.*

Some old writers have described this radical doctrine which Perceptionalism supports as that of "the reliability of those faculties which God has given us." This is a fair definition; but it should be understood that the reference to our Maker in it is not presented in proof of the doctrine, but simply to indicate that trustworthiness is claimed only for well-known and actually existing faculties, and not for any faculties the conception of which is peculiar to some philosophic school.

The word "perception" is sometimes limited in its application: we now use it in its most unrestricted meaning. For we have perceptions of simple fact and perceptions of necessary relations; presentational perceptions and inferential perceptions; the perceptions of sense and of consciousness, and perceptions concomitant of these; the perceptions of the intuitive, and those of the discursive, reason: we perceive what is true actualistically and what is true hypothetically; we perceive the possible and the necessary, and the contingent and the probable.

Our doctrine is that all these perceptions, when made by a sound mind and under proper conditions, are trustworthy; and our philosophy finds justification for this doctrine in the critical investigation of every mode of human cognition or conviction.

Perceptionalism does not assert that the mind of man is infallible. On the contrary, recognizing the frequent recurrence of error, it seeks to understand the sources and laws of mistaken belief as well as those of. correct belief. But it emphasizes the truth that man is capable of knowledge, or well-grounded certainty, about many things; and that where this is not attainable, he may often wisely form a judgment of probability.

We allow that the dogmatic statement of this truth, even though accompanied by arguments showing its excellence and reasonableness, could scarcely be entitled a system of philosophy. If, however, the reliability of our faculties became evident as the last result of an exhaustive analysis of the phenomena of the intellect, then, in the system thus evolved, we say that there would be a philosophy worthy of the name.

We trust that the discussions now again, in simpler form, presented to the public, may once more be welcomed as an attempt in the right direction.

For some time past our country has been invaded by two systems of speculation, which, like an army with two wings extended in martial array, have threatened to subdue America either to a materialistic or to an idealistic agnosticism. But the educated thought of this land cannot be permanently affected by theories which resolve our commonest and most assured convictions into doubt and unbelief. It is our confident expectation that some such system as that which we have named Perceptionalism will be the philosophy of the future in these United States.

E. J. H.

Hamilton College, Clinton, N. Y.,
May 23, 1885.

PREFACE.

1899.

THIRTEEN years ago, a treatise entitled "The Perceptionalist" was placed in the hands of Robert Carter, then the oldest living publisher in New York City, and then, as always, one of the best and noblest of men. He objected to the designation "Perceptionalist," because of its novelty, and because it could not be found in any dictionary. In deference to his judgment, the name was changed; after which one, and then another, edition of the book, under the title "Mental Science," was issued by Robert Carter and Brothers.

Meanwhile the term "Perceptionalism" has been used for a dozen years to distinguish a system of philosophy, and has found its way into some of the dictionaries. Under these circumstances, and in view of the present opportunity, it is only proper that the book should appear under its original name. This seems the more expedient because, in the present edition, the treatise is preceded by a dissertation in which Perceptionalism is defined, and in which the leading doctrines of Perceptionalism are briefly stated.

After the necessity for the present issue became apparent, the author reviewed "Mental Science" carefully, to determine what changes were needed in the text, or if any additions were desirable. He found that only a few unimportant alterations were called for. These have been made; and he now offers "The Perceptionalist" to the public as the best text-book within his power to produce.

As this work is specially designed for use in colleges and universities, it may not be out of place to state the way in which it has been found most serviceable in an Eastern college and in a Western university. The writer has been influenced by consideration for a class of students whose instruction in Mental Science must be limited to about fifty exercises in the lecture room. To meet their needs, he has sometimes omitted those portions of the book which are printed in smaller type.

But another method, suggested by the peculiar plan of the book, has been tried for several years, and has proved very satisfactory. For, after the first seven or eight chapters (which are introductory), the treatise may be said to consist of two parts or volumes, each of which relates to one broad view, or aspect, of the phenomena and faculties of the mind. The first of these volumes begins definitely with Chapter X., and is based on the division of our mental powers into the Primary and the Secondary. Thought (or Conception) and Belief (or Conviction) are called the primary powers, because the exercise of them is the essential and ultimate work of the intellect; while Attention and Acquisition, Reproduction and Association, Analysis and Synthesis, Abstraction and Generalization, are secondary powers, because their function is to modify the workings of Thought and Conviction and to render them efficient.

Of course, "Thought" here, as opposed to "Conviction," signifies *mere* thought, — the mere power of having ideas.

The peculiar doctrines of Perceptionalism are presented chiefly in the first part, or volume, of the treatise. The second volume, beginning with Chapter XXX., regards mental life as divisible into three Grand Phases, — the Perceptive, or Presentational; the Reproductive, or Representational; and the Discursive, or Rational, — each of which is a resultant of the activity, under determining conditions, of both the Primary and the Secondary powers of mind. The course of discussion thus introduced, no less than that of the first volume, brings under survey all the phenomena of the intellect. But it considers the concrete forms of mental life, and seeks to understand these while keeping in remembrance the principles and laws elucidated in the first volume. It will be noticed that the order of thought in this second series of chapters agrees with that commonly followed by text-books in mental philosophy.

Finally, the treatise closes with two chapters based on yet another logical division, whereby the fundamental Elements of both Thought and Belief are distinguished as the Experiential and the Intuitional.

Such being the construction of the book, the author has been led to make it the foundation of *two somewhat independent courses of instruction*. He has employed the first twenty-nine chapters, together with some lectures, for a twelve weeks' course; and he has given another twelve weeks' course in connection with the first seven chapters and with the concluding portion of the book beginning with Chapter XXX.

These courses are so independent that a student can take either of them without taking the other, while, at the same time, they are so supplementary to each other that every student who has the time should take both. As a matter of fact, most students of the University of Washington who have taken one of these courses have elected the other also.

The above method is especially commended to any professor who can devote himself to philosophical instruction with more than ordinary thoroughness, and who may wish to supplement the chapters of the book with lectures of his own.

E. J. H.

SEATTLE, WASHINGTON,
October 15, 1898.

PERCEPTIONALISM.

A PREFATORY DISSERTATION.

1. The word "perception," in its ordinary meaning and widest application, signifies the correct apprehension of fact or truth. On this basis, *that philosophy which examines and explains perceptions as such, may be styled Perceptionalism.* Let us discuss this name and give some reasons for the use of it; and let us consider the nature of the philosophy which it designates.

The Latin preposition "per," like its English equivalent "through," often indicates instrumentality, or agency, as in the maxim "Qui facit per alium, facit per se"; but "per" never has this meaning when used as a prefix in the composition of words. It then signifies either movement through or over some place, as in the verbs *peragro*, *perambulo*, *permitto*, *perrumpo*, or else thoroughness in the performance of some action, as in the verbs *pereo*, *perfero*, *perficio*, *pernego*, *pernosco*. This last thought — thoroughness — is the ordinary signification of "per" as a prefix, and is that belonging to it in the words "perceive" and "perception."

The verb "percipere" and the noun "perceptio" originally meant any thorough taking of a thing, so as to bring it within one's possession. In the seventeenth chapter of Cato Major, Cicero speaks of the "perceptio fructuum," or harvesting of fruits; and, in the same chapter, he says "Themistocles omnium civium perceperat nomina"; that is, Themistocles had learnt, or mastered, the names of all the citizens. These quotations illustrate the transfer of the word from a physical to a psychical application. But "percipere," as indicating intellectual apprehension, does not always, nor even generally, include memorizing; as it does when Themistocles is said to have learnt the names of his fellow-citizens. Ordinarily with the Romans this word signified simply *the cognition of fact or truth;* and especially, when they spoke of perceiving a thing by the senses or by the mind, they used language just as we do; they meant that psychical operation by which one comes to know that a thing is, or what it is, or that it would be, or what it would be. And this is a very natural use of language; for when we have gained the knowledge of any fact or truth, we may then be said to have taken something into our possession, whether we retain it afterwards in our memory or not.

In short, *perception and cognition are two names for the same process.* They differ in that perception emphasizes the thought of the process more than that of the result, while cognition emphasizes the thought of the result more than that of the process. But perception always terminates in knowledge, and is therefore cognition; no act or process is called perceptive except on the assumption that it produces absolute and well-founded conviction.

2. These statements will be confirmed if we consider the different modes of perception which occur in our daily experience. There are *three simple modes of immediate cognition.* Men perceive their own bodies and bodily affections and the immediate causes of these affections; such cognition is the beginning of all *sense-perception.* They perceive their own souls as in activity, as thinking, feeling, or willing; this we call *consciousness, or internal perception.* Then, in connection with bodily and mental phenomena, they perceive spacial, temporal, causal, and other relations; and, along with these relations, certain fundamenta on which they rest, such as spaces, times and changes. All such cognitions may be distinguished as *concomitant perceptions,* because they accompany those of sense-perception and consciousness. Thus, there are three simple modes of immediate perception.

We also form *compound immediate perceptions*, especially of external objects; and these prepare the way for *inferential, or "acquired" perception.* The boy born blind, who obtained sight through a surgical operation, could not at first distinguish the cat from the dog visually, though he could tactually. Catching the cat one day, he passed his hands over her, and identified what he felt with what he saw. Then he set her down and said, "So, puss, I shall know you another time." Here a concomitant perception compounded the cognitions of sight and touch; and evidently a basis for subsequent inference was secured by means of that compositional cognition. Hereafter, whether puss be seen in the daytime or handled in the dark, the same knowledge will be obtained through one sense which originally resulted from the use of two. All our ordinary sense-perceptions are more or less "acquired"; and some of them, such as determinations by the eye of the distance, size, and shape of remote objects, are quite complex judgments.

More evidently, though not more really, inferential than the ordinary discriminations of sense are those *rational perceptions* by which things are seen as necessarily or probably or possibly consequent upon given antecedents. Here, perhaps, it would be more literal to say that a thing is inferentially perceived when it is necessary, and that, in other cases, we only perceive that it may probably or possibly exist; yet, even in these cases, we speak of perception if the judgment be made correctly. Because we may *know* that a thing is probable or possible.

All rational perceptions are related to our presentational cognitions, and seem consequent upon them. For in the immediate cognitions of fact we perceive, not merely simple fact, but also, by a concomitant cognition, various necessary relations according to which one fact is conditioned upon, or connected with, another. This prepares us for logical inference; so that afterwards, when a necessitant, or a necessary condition, appears, we can infer a necessary or a possible consequent, such as the case calls for.

Then, too, we must mention that important mode of rational perception which takes place even in the absence of any antecedent. For the mind, using that power of conception which deals with things that are not as if they were, makes inferences from supposed or imaginary premises. Therefore we recognize *hypothetical as well as actualistic perception*, and hypothetical as well as actualistic knowledge.

3. Now, as every mode of perception — whether it be presentational or inferential, whether it be actualistic or hypothetical — claims to be a mode of cognition and to result in knowledge, it is plain that the doctrine which explains perceptions as such must assert and maintain the reliability of our perceptions. In other words, Perceptionalism must teach that what men call their perceptions are true perceptions, and that what men know they truly know, and that these positions are justified by the thorough examination of both thought and fact.

It may cause astonishment to some that any system should set forth such teaching as distinctively its own. It may be asked, "Do not all philosophers accept the perceptions of mankind as veritable cognitions? Is it not presumptuous in one school to assert that this doctrine is specially and pre-eminently the result of its own investigations?" We reply that the past history of philosophy, and the condition of philosophy at the present time, warrant the statement that all *the more celebrated systems, both of ancient and of modern days, conflict more or less with the ordinary convictions of mankind;* and by far the greater part of the speculative talent of the existing generation not only rejects the radical idea of Perceptionalism, but considers that idea a mark of intellectual shallowness. The popular philosophies of to-day, while differing from each other, are wonderfully agreed in explaining away various fundamental beliefs. Who are more antagonistic than the Associationalists of England and the Idealists of Germany? Yet both teach that we have no proper knowledge of an external and material world; both declare that space and time are mental products, and not things which have independent natures of their own; and, according to both, substances, powers, the relation of cause and effect, and necessitudinal connections generally, are merely forms of conception.

Then, too, particular schools of philosophy, in their very points of variance from each other, are at variance also with the judgments of mankind. Materialism, in saying that the soul is composed of a multiplicity of molecules, and that its life is the action of these molecules, denies that unity of the human spirit in which all men believe; on the other hand, Pantheism denies the well-known multiplicity of agents and objects in the universe, asserting that there is one only substance.

4. In view of the history of speculation, the student of theories might even question whether there is any thorough-going system which maintains the reliability of human cognitions. At the same time, if he were convinced that there is such a system, he could not refuse it the name PERCEPTIONALISM. In every scheme of metaphysical philosophy, the theory of knowledge is the fundamental part, and that from which it is most expressively designated. We advocate the name "Perceptionalism," not only on the ground that there is a philosophy which should be known under this title, but also because we believe that the system thus distinguished is likely hereafter to receive more consideration than has been accorded to it heretofore.

In ancient times there was no such system. Aristotle asserts that the beginning of all knowledge is that "*natural power of judgment which is called perception*" (*δύναμιν σύμφυτον κριτικήν ἣν καλοῦσιν αἴσθησιν*); but he did not investigate our first cognitions so as to determine their content and establish their correctness. The Stoics held that *αἴσθησις*, or the immediate perception of fact, is the origin of knowledge and the criterion of truth; and this same doctrine was taught by the Epicureans. Moreover, both these schools, agreeing with the Aristotelians, declared that man's *rational* perceptions are reliable; though they allowed that reason may err, and taught that mistakes in perception are to be attributed, not to the senses, but to judgment, or inference. Both also went farther than the Aristotelians in exalting *αἴσθησις* — in this connection signifying specifically presentational perception — as the source of knowledge; with this doctrine, they opposed Platonism on the one hand, and Scepticism on the other. Yet neither the Stoic nor the Epicurean system attained a permanent success; neither proved sufficient to resist the Neoplatonism and Mysticism of the first centuries of the Christian era.

In subsequent times, Scholasticism, applying Aristotelian ideas to the doctrines of the Church, showed great dialectic power, but added little to scientific knowledge. Finally, after the theological awakening of the sixteenth century, came the speculative activity of the seventeenth; and towards the close of the seventeenth century, in the year 1689, John Locke gave to the world the beginning of a great philosophy.

5. Locke founds all knowledge on "experience," and has, therefore, been styled the founder of an "empirical," or associationalist, philosophy; but erroneously. By "experience" Locke means simply *presentational perception*, — the *αἴσθησις* * of Aristotle, and of the Stoics; "sensation and reflection" are the names which he gives to the outward and to the inward modes of this perception. Moreover, he teaches that the perception of necessary relations occurs in connection with the cognition of simple fact, and is absolutely and objectively intuitive. These initial principles of Perceptionalism were obtained by Locke from the critical observation of the phenomena of mind. Yet his "Treatise on Human Understanding," defective in the development and yet more in the expression of its thought, did not save the eighteenth century from the Associationalism of Hartley, the Idealism of Berkeley, and the Scepticism of Hume.

In opposition to these destructive theories, the "Essays" of Thomas Reid, the Glasgow professor, were written towards the close of the eighteenth century. In these the natural force of the ordinary convictions of mankind was powerfully directed against the subtle errors of that day. But the thought of Reid is lacking in theoretic discrimination and construction. He often assumes first principles, sometimes leaves difficulties unexplained, and can scarcely be said to have produced a philosophic system. His excellence and his deficiency are both expressed when he is characterized as "the apostle of common sense." Mightily defending the truth, he left it as he found it, without analysis and without systematization.

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* *Αἴσθησις* with the Greeks referred pre-eminently, but not exclusively, to sense-perception. Aristotle speaks of reason as a higher kind of *αἴσθησις*; and also of the moral faculty in the same way. Thus, in his Ethics we read: "*Τοῦτο πρὸς τἄλλα ζῷα τοῦς ἄνθρωποις ἴδιον, τὸ μόνον ἀγαθοῦ καὶ κακοῦ καὶ δικαίου καὶ ἀδίκου καὶ τῶν ἄλλων αἴσθησιν ἔχειν.*" The verbs *αἰσθάνομαι*, *sentio* and *perceive*, all have about the same significance and the same breadth of application.

6. During this nineteenth century some advance has been made by eminent philosophers, who have called themselves *Intuitionalists.* Their writings thoroughly discuss both original (or presentational) and acquired (or inferential) perception; and also throw much light on those immediate cognitions of necessary truth which, because they take place hypothetically as well as actualistically, and in the absence as well as in the presence of objects, have been called "*the intuitions of the mind.*" Nevertheless, so far as we can learn, no teacher of Intuitionalism has succeeded in founding a school in which, like the patriarch, "he will command his children after him." Ambitious pupils, however carefully instructed, do not become permanent disciples. They read and study further — as they ought to do — and then are more or less influenced by some imposing and skilfully constructed system of error.

We ascribe this to the narrowness and incompleteness of Intuitionalism. Correct, so far as it goes, it is but the commencement of a philosophy. Its teachings regarding the immediate perception of fact and the necessary relations of fact should be united with others, equally important, concerning the rational and discursive intellect, and concerning thought and conviction in general. In short, with sincere respect and consideration both for ancient tradition and for modern theory, we assert the need of a new and comprehensive elaboration of mental science.

The name "Intuitionalism" of late years has been very properly abandoned as the designation of a system of philosophy; it is not only confined in its suggestions, but is also affected with an obscurity arising from the ambiguities of the word "intuition." And the name "Realism," which some propose, is yet more unsatisfactory. This title belongs historically to the doctrine of the reality of "universals" — a doctrine rejected by those who would now call themselves Realists. It also furnishes ground for quibbling controversy. For those philosophers who reject the ordinary beliefs of men do not admit that they deny reality. They say, "The question is not, 'Is there reality?' but 'What is it?' and 'How shall we think about it?'" And they protest against the settlement of such questions dogmatically, or in any other way than by a process of critical investigation.

Moreover, it is to be remembered that a most important class of human perceptions — including general judgments, and among these axioms, or the principiated intuitions of necessary sequences — do not, properly speaking, assert reality, but only hypothetical truth.

7. On the whole, PERCEPTIONALISM appears to be the best designation for a philosophy which teaches that man's immediate or intuitive convictions are never mistaken, and that, under certain conditions and limitations, even his inferential conclusions may be relied upon. For us, this name defines a system of doctrines to which scientific method leads, and which, we believe, is destined to be generally accepted by thinking men. At the same time we are far from saying that the doctrines of Perceptionalism have reached perfection or completion; that would be too great a claim. We assert only that many leading positions have been established, and that the future of this system is assured beyond a peradventure.

Some learned professors condemn this confidence of ours as that of "a rustic philosopher who has never adequately studied the deeper phases of the cognitive problem"; and many others regard a system which prefers the views of the vulgar to those of illustrious theorizers to be of very dubious value. It must even be acknowledged that a certain presumption against our philosophy is natural and reasonable. We trust, however, that we shall not be excluded from a candid and attentive hearing while stating some doctrines in the connected assertion of which Perceptionalism may — as we think — not only claim to be a system, but also challenge comparison with other systems. We shall simply state these doctrines, without discussing them at any length.

8. First of all, we need scarcely say that Perceptionalism agrees with assertive, and differs from sceptical, systems in holding that *there is such a thing as knowledge*, and that *some things are self-evident, or immediately cognizable.* For, as Aristotle says, it is folly to seek proof for everything. If there be knowledge at all — if we have absolute and well-founded conviction about anything — some knowledge must be immediate, or "intuitive"; and other knowledge must be consequent upon that. Therefore earnest thinkers seldom ask, "Is there knowledge?" but "What is knowledge?" and also, "How do we know?" and, "What do we know?"

9. Again, Perceptionalism teaches that cognition — and, in particular, *cognition by the senses — is an extremely different thing from sensation.* Cognition is an intellectual operation; sensation is a feeling — a psychical commotion — produced by the action of the nerves upon the spirit. Sense-perception is conditioned on sensation because it involves a cognition of the sensation, but it does not include the sensation. The cognition of the sensation, but not the sensation itself, is an element in sense-perception. In order to perceive the acidity of a lemon, this juicy fruit must be applied to the tongue so as to produce a specific feeling. Thereupon — and in one and the same act — we perceive the sensation and its causal correlative.

The thought, or conception, of a sensation should not be identified with the sensation. The thought of the feeling of sourness, or of the feeling of hunger or thirst, or heat or cold, or hardness or softness, is a different thing from that feeling; so, likewise, the cognition of a sensation is not the sensation. Therefore, *the act of sense-perception does not include the sensation, but only the cognition of it, together with that of its cause.*

Some corporeal sensibilities — especially the visual — are so delicate and so intellectual in their use that their character as feelings is eclipsed by their service as the instruments of perception; yet, even in such cases, we distinguish the feeling from our cognition of it. For example, the pleasure derived from certain sensations of color arises from feeling rather than from perception.

But if thought and sensation are things radically different, then the teachings of Sensationalism must be rejected; for this doctrine affirms that cognition, memory, conception, imagination, and intellectual activity of every kind, are either bodily feelings or the reproduction and refinement of such feelings. Not only so, we must reject also that more specious theory which speaks of "the sensational elements of knowledge," and according to which sense-perception is the combined action of the reason and the sensibility. The error involved in this theory is double, and is the beginning of further error. For no one can rightly explain sense-perception if he do not see both that sensation is not, and that the cognition of the sensation is, a constituent part of the perception; and *no one can correctly understand the nature of thought in general who fails to see that sense-perception, though conditioned on sensation, is wholly intellectual*, and contains no sensational element whatever.

10. In the next place, Perceptionalism distinctly recognizes that mode of cognition which we have called *concomitant perception*. Our bodily parts and things in contact with them become known to us in sense-perception, and this originates our knowledge of material substances and qualities. Consciousness reveals the soul and its powers in various states and operations; and thus our acquaintance with the spiritual world begins. By concomitant perception we learn of things which are less directly, though not less immediately, perceived than are the objects of sense-perception and consciousness. For example, the relations of both material and spiritual things, and those portions of space and time which are immediately related to one's body and one's soul, are perceived concomitantly.

Neither this mode of perception nor the objects of it can be properly recognized by those who hold that sense-perception and consciousness are the only modes of immediate cognition, and who confine the former of these to things that can be touched or felt, and the latter to the experiences of one's own spirit. But many authors, following Locke, say that space and time, and the relations of space and time — as also quantity and change and their relations — are truly perceived along with the more direct objects of our cognition. These writers teach also that space is known in connection with sense-perception, and time in connection with consciousness. All such should welcome the doctrine of concomitant perception as an improved statement of the truth. For *time is not perceived exclusively in connection with consciousness, nor space exclusively in connection with sense-perception.* Both are perceived along with both modes of cognition, and by means of a cognition of their own.

This concomitant perception does not differ from that which it accompanies in its nature, but only in its objects and in the fact that these are viewed, as it were, obliquely. The cognition of these objects, like all other cognition, takes place when we both conceive of them and recognize their reality. For spaces, times, changes, and relations, though insubstantial and powerless things, are objects, or entities; for they exist, and their existence is perceived as truly as that of substantial agents and of the powers and operations of such agents.

Concomitant perception may be easily illustrated. Let a man grasp a warm wooden ball with one hand, and, at the same time or soon after, a cold metallic ball with the other hand. He now perceives, not only the sensations of weight and touch and temperature, and the balls as causative of them, but also each hand and the ball in it as in contact with one another. He perceives, further, that his hands and the balls in them have separate positions in space. He compares and contrasts, as to their points of likeness and unlikeness, the facts given by his right hand with those given by his left. And he recognizes that the parts of this experiment take place contemporaneously or successively, as the case may be. Moreover, not only the hands and the balls, but also all the relations observed, together with the space and time and other relata, are as truly and as surely perceived as are the sensations of weight and touch and temperature. By this perception of those entities and relations which are immediately connected with his own personality, man becomes qualified for the knowledge of the Universe.

Thus, teaching concomitant perception, we oppose the doctrine that space and time and change and relation, and even substance and power, are not entities at all, but merely modes of thinking; and we challenge the advocates of this doctrine to show either that concomitant cognition is not as much a fact of experience as any other mode of cognition, or that there is any good reason for distrusting its most positive assertions.

11. In the fourth place, Perceptionalism teaches that *every cognition, however simple, contains two elements, which may be distinguished as thought and belief, or as conception and conviction.*

Here terms are used technically, though as nearly as possible in conformity with common usage. By thought, or conception, we mean that intellectual activity in which we have the idea of a thing, and also of its existence or of its non-existence; and in connection with which we may, or we may not, believe in its existence, or in its non-existence. By belief, or conviction, we mean that confidence in the existence, or in the non-existence, of a thing which, under certain conditions, arises in the mind either intuitively or inferentially.

That there is a radical distinction between thought and belief, as thus described, seems clear enough; but *most philosophers fail to see this distinction.* Very often conviction is taken to be either a vivid and persistent mode of conception or a peculiar combination of conceptions. Many, adopting a teaching of Aristotle, make existence to be a conjunction, or a relatedness, of things, and belief a corresponding synthesis of thoughts. The truth is that belief is an intellectual activity wholly *sui generis;* it is not thought, though it is conditioned on thought; it is a confidence which may, or may not, accompany an idea or combination of ideas.

This confidence admits of a variety of degrees, but it does not have that marvellous correspondence with the nature, or form, of things which characterizes thought, and which may be styled "the objectivity of thought." The lowest degree of conviction is presumption, or guesswork; the highest, absolute certainty. Knowledge (of which cognition is the initial act) is absolute and well-grounded certainty.

Moreover, *there are two modes of conviction, the actualistic and the hypothetical.* The former of these is belief in the primary and literal sense; the latter is a preparatory and provisional confidence in connection with the thought of a consequent as related to the supposed antecedent. These modes of conviction differ radically. The hypothetical knowledge that a thing would be so is even entirely consistent with the actualistic knowledge that it is not so. Those philosophers who misapprehend the distinction between thought and belief sometimes also fail to distinguish hypothetical from actualistic knowledge.

12. This brings us to another point in Perceptionalism, namely: *the essence of belief lies in the mental assertion of the existence, or of the non-existence, of something.* Every belief may be expressed by a proposition; and there are two kinds of propositions, the presentential and the inherential. The former asserts the existence, or the non-existence, of the subject of the proposition; for example, "Bread exists" and "Bread does not exist," or, as we more frequently say, "There is bread," and "There is no bread"; the latter asserts the existence, or the non-existence, of the predicate. For example, "The bread is sweet" and "The bread is not sweet." For these sentences assume the existence of the subject, and assert the existence, and the non-existence, of the predicate in its relation to the subject.

It is astonishing that *this account of propositions, though self-evident in its simplicity, is not to be found in the writings of any authority, whether ancient or modern.* All logicians, from Aristotle down, have been inaccurate in their analysis of assertive thought. Their theories have been preparative to this doctrine, which, we think, must be accepted as a final statement.

It should be noticed that existence and non-existence, though not things, or entities, are not mere thoughts, but, in their own way, objects of thought. For if a thing exists, it is a fact that it exists; and, if it does not exist, it is a fact that it does not exist. This last statement does not mean literally that an entity is ever non-existent; for in order to be truly the subject of an assertion an entity must exist; and it would be absurd that what exists is at the same time non-existent. It is only asserted that non-existence may be a fact in a case in which an entity might be supposed to be; which idea is also expressed occasionally by the term "non-entity."

Let us note also that the word "*non-existence*" *is only a relative designation, and does not indicate a compound nature.* Non-existence, no less than existence, is an absolutely simple objectuality. It is named "non-existence" because its whole importance lies in its diversity from existence, and not in its own nature.

The definition of belief as the mental assertion of existence or non-existence applies also to our knowledge of fact or truth, *knowledge being absolute and well-founded belief.* This same definition, also, explains judgment, the initial act of belief, and cognition, the initial act of knowledge. For philosophers necessarily use the words belief and judgment in a very comprehensive sense.

If, now, the essence of belief, judgment, knowledge, and cognition be the assertive use of existential thought, what shall we say of the theory that perceptive judgment, or the cognition of fact, is a synthesis of representations (or appearances) under some category of conception, whereby the experiences of the mind are reduced to this or that mode of unity? What of the definition that "the union of representations in one's consciousness is judgment"? (Mahaffey's Kant.) And of Kant's own words, "So finde ich, dass ein Urtheil nichts Anderes sei, als die Art gegebene Erkenntnisse zur objectiven Einheit der Apperception zu bringen"? This theory misses the point altogether.

A synthesis of thought mostly conditions judgment; but it is not judgment. A synthesis may be perfected without any judgment asserting that synthesis; and, when such judgment takes place, it is not a uniting of things in thought; it is the assertion that things do — or do not — exist in the combination conceived of. Such is the ordinary perceptive, or cognitive, judgment; and other forms of judgment — the hypothetical and the problematic — are to be explained in a similar way. The essence of all judgment is not synthesis, but assertion.

13. Another important teaching of Perceptionalism relates specially to inferential judgment, and may be stated as follows: *The fundamental principle of inference and reasoning is that of Antecedent and Consequent; and the metaphysical basis of this principle is the Law of Conditions.*

By a condition we mean a necessary condition — *a sine qua non* — that without which a thing cannot exist, and which, therefore, is logically necessary if the thing conditioned exist.

Necessary relations — and therefore, also, conditions — belong to the very nature of things, and consequently pervade the constitution of the universe. Conditions are either causal, constitutive, or concomitant. All things within the universe exist both as conditioning and as conditioned. But space, time, and God, which are conditions of the universe, are free from causal conditions.

When any condition of a thing is known to exist, we say that *the thing is possible so far as that condition is concerned;* and we call that condition, or whatever may contain it, an antecedent of possibility. Thus if a man be rich, or in any way a man of property, he may own real estate, or personal property, or both.

Necessary conditions, though not necessitative, *may be said to have a necessitative force;* for logical *necessitants* are constituted from them. Thus, a coat would certainly be made if there were not only cloth, buttons, thread, and other materials, but also a tailor and his implements and proper opportunity and inducement. A logical necessitant, *or whatever contains it*, is an antecedent of necessity. For example, if a mineral specimen be metallic, of a certain specific gravity, of a certain color, and have certain chemical qualities, we conclude that it is gold.

It matters not, for the purposes of inference, whether a necessity be absolute or relative — whether it belong to the nature of things or to some instituted arrangement. But demonstration from relative necessity presupposes that no adequate power interferes to prevent the sequence; under which state of things the relative becomes the absolute.

Necessity, widely conceived, is of two modes; the necessity to be and the necessity not to be. Each presents a fact unalterably connected with an antecedent fact. But negative necessity is commonly distinguished as impossibility. So also impossibility, widely conceived, is either impossibility to be or impossibility not to be, the latter of these being commonly called necessity. All this is taught by Aristotle.

Probability arises *when an antecedent of possibility is certain to be completed into an antecedent of necessity in one or other of a plurality of ways*, no one of which can be expected more than another, and when a given proportion of the possible alternative consequents have a common character. The consequent of probability is conceived of and asserted as having that character.

Contingency, as distinguished from possibility, is *an indeterminate probability*, the ratio of the chances not being settled. Both contingency and probability arise from a combination of necessity with possibility; for there is a general necessary consequent which must be realized in some one of a number of possible forms, called chances.

Let us note, also, that *universal propositions respecting logical classes indicate laws of necessary sequence, while particular assertions set forth contingent sequence.* Logical classes are creations of the mind, and have their chief use in the statement of laws of inference. Hence, the "quantity" of propositions should be explained as a secondary expression of necessity and contingency — or, as logicians say, of modality.

14. Our general survey of the doctrine of belief has brought before us a number of fundamental conceptions, each of which should be assigned its proper place in a theory of knowledge. *These conceptions mostly present themselves in pairs, and may be expressed antithetically.* For example, conviction is either actualistic or hypothetical, the former of these being pre-eminently belief and knowledge, and the latter a preparatory and

ministerial kind of confidence. Then, actualistic conviction is either presentational or inferential; and inferential actualistic conviction is either apodeictic or problematic; the problematic being either in possibility or in probability. Hypothetical conviction is essentially inferential, and, like actualistic inference, is either apodeictic or problematic.

Necessity and possibility are the primary bases of inference. Probability and contingency result from a combination of these two bases. Necessity and impossibility are radically of the same nature with each other, and may be regarded as two aspects of the same thing.

Hypothetical conviction differs from actualistic inference in that the antecedent is supposed, and not presented as real; so that the consequent is only hypothetically asserted. The form and the sequence of thought are the same in hypothetical as in actualistic inference. Both modes of conviction alike relate to existence and non-existence; but, in the one, these are merely matters of conception; in the other, they are facts, or realities, or are believed to be such.

An hypothetical sequence becomes actualistic if the antecedent be asserted as real; *this takes place in "hypothetical" and "disjunctive" syllogisms*, which, therefore, are actualistic in their total operation.

Hypothetical assertion may be either individual or general, according to the character of its antecedent, or subject. *All general principles are hypothetical sequences;* and they are either necessary or contingent. They are expressed, in categorical assertion, either with the "must" and "may" of the "modal" proposition, or by the "all" and the "some" of the "pure" proposition. "*Quantity,*" *universal and particular*, *is only an expression of modality.*

15. This exposition of the forms of thought employed in judgment seems plain enough. But clearly, if these forms have been rightly presented, they are not so many co-ordinate, independent, and ultimate modes of conception, but the diverse and variously related members of a system. They do not lie side by side like the panels of a door or the panes of a window;

they resemble rather the unequal branches of a genealogical tree, or the parts of a complicated machine.

Therefore, also, we say that *Kant's twelve "categories" cannot be accepted as furnishing an instructive tabulation of the ultimate forms of judgment.* Had they been proposed as a primary and tentative enumeration of assertive modes of thought, with a view to the commencement of scientific analysis, they might not have been altogether worthless. But as the result of "an analysis of the elements of human reason," that table of categories, in four sets of three each, is an egregious blunder. It is not only founded on the false theory that judgment is the faculty which gives unity to our ideas by bringing them together under certain general forms of conception, but it fails to classify judgments according to their true differences. Mistaking the superficial for the fundamental, it is defective and misleading in the extreme, and is the beginning of an endless and hopeless confusion.

For the better exhibition of the truth concerning forms of judgment (or mental assertion) we shall subjoin to the present dissertation a table showing the different modes of belief or conviction and their relatedness to one another.

16. Yet again, Perceptionalism teaches that *general ideas are the product of generalization, and general principles of principiation, and that there is no exception to this rule.* Principiation is the generalization of sequences, and it involves more than the generalization of ideas, for it pertains only to illative propositions and is accompanied by an hypothetical belief.

The law according to which principiation takes place is that which justifies "reasoning from example," and may be called the homologic principle. It is that the same (that is, an exactly similar) consequent may be inferred upon the repetition of an antecedent already known to have that consequent. This presupposes that the human mind can perceive, in individual cases, the relation between antecedent and consequent, and also what elements are essential to the antecedent.

Induction, or the generalization of "the laws of nature," is one species of principiation; the formulation of ontological principles is another. Metaphysical and mathematical axioms are generalizations from the perception of absolute necessities in individual cases; these axioms are called self-evident because they are conceived and asserted with little consciousness of any mental process.

The doctrine that *all things which exist are individuals*, and that general objects and truths are forms of thought constructed from individual perceptions, was more definitely advocated by Locke than by preceding philosophers; but it has always commended itself to sober-minded thinkers. According to this view Reason *is not the birthplace of general notions and principles, but rather the workshop where they are manufactured and stored.* It is an endowment of mental strength manifested, first, in the clear penetrative apprehension of individual facts and relations, and then in the analysis, generalization, and logical development of the knowledge thus obtained. This conception of the Rational Faculty may be humbler than that of the Νοῦς of Plato, or the "Pure Reason" of modern Idealism; yet, if it be the true conception, it is noble enough for us, and to be preferred to even the most imposing philosophical myth.

These views of Reason and its objects consist with that distinction which many make between φαινόμενα and νούμενα, provided the former be taken to signify all observable actualities (including substances, powers, spaces, times, and relations), and the latter to signify all the objects of rational cognition or conception. For then νούμενα, when they are individual, are simply φαινόμενα rationally and clearly understood; and, when they are general, they are merely abstract conceptions derived from the perception of the φαινόμενα. But, if by φαινόμενα be meant only things which can affect the senses, and the implication be that no other are immediately perceived, and if by νούμενα be meant the objects of rational conception, and the implication be that these are things of a different description from objects immediately perceived, then *we discard both νούμενα and φαινόμενα as metaphysical fictions and the embodiments of error.*

17. Finally, we claim that *Perceptionalism is the basis of a reliable ontology.* In other words, it introduces satisfactory

theories concerning "the nature of things"—concerning the constitution of the Universe—and concerning God. This success is the result both of the positive, and of the negative, doctrines of this system. Those who find the beginnings of knowledge in immediate presentational cognition build on a firm foundation; and when, in addition to this, they ignore all *a priori* assumptions of every kind, they may be confident that patient investigation will enable them to distinguish truth from falsehood.

Some ontological principles, obtained from our immediate perceptions, have been already mentioned, as, for example, that individuality is the necessary property of everything that exists, generality being ascribable only to certain thought-objects which have no existence. We have seen also that all things are subject to "conditions," so that the Universe is permeated with a network of necessary relations. And we have found that the Law of Conditions is the philosophical basis of possibility and impossibility, of necessity, contingency, and probability.

We now add that *Perceptionalism obtains the categories, or supreme genera, of Being from the analysis of our immediate individual cognitions, these being the origin and ground of all human knowledge;* and it proposes the following eight Categories, namely, Space and Time, Substance and Power, Action and Change, Quantity and Relation. All these, together with their negations, are perceived in connection with one's own spirit and one's own body; and nothing can be conceived of that is not either one of these or a combination of more than one; nor can anything exist except according to the nature and laws of these eight forms of entity.

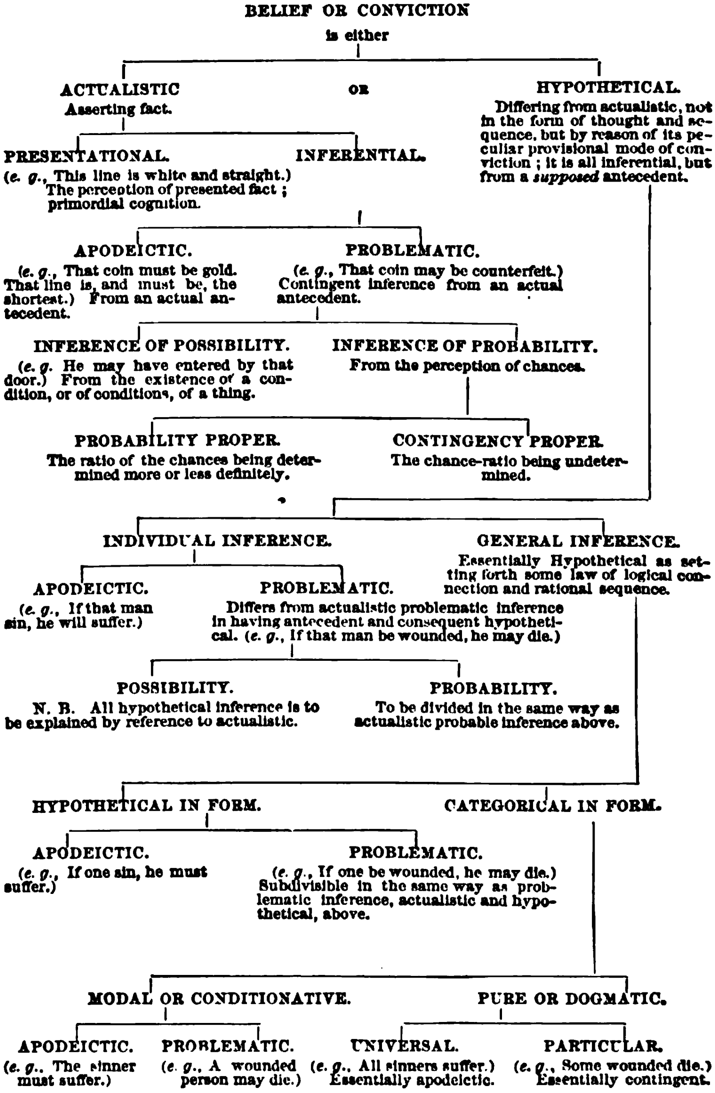
Moreover, as these kinds of entity differ from one another, we cannot say that, because each is an entity, therefore there is only one mode of entity, or only one entity. In like manner those who perceive two forms of substance—the spiritual and the material—and many separate individuals of each form, cannot allow either that there is only one substance or that there is only one kind of substance. When we think, in the general, either of entity or of substance, we think one thought; but the oneness of that thought does not prove that there is only one entity, or only one substance. Yet, ever since the dawn of philosophy, this fallacy has had a wonderful attraction for metaphysical speculators. It has given many the fundamental doctrine of a religious creed, as well as the central teaching of their philosophy. For the old Eleatic identification of the One, the Existent, and the All (τὸ ἓν, τὸ ὂν, και τὸ πᾶν), and the demand of modern Pantheists that "the antithesis between the unity and the multiplicity of Being must be reconciled," both rest on *the paralogism that Entity is one because the thought of Entity is one.*

Perceptionalism, escaping such delusions, recognizes a boundless variety of entities, and at the same time asserts the existence of one all-pervading and eternal Spirit. It finds the Universe arranged and governed by an intellect not its own, and ascribes that intellect to a self-conscious Being.

We have now named a philosophy, and illustrated its doctrines. Our aim in this has been, in the main, expository. But *the inculcation of truth is the refutation of error; and the only refutation that can be full and final.* Therefore we oppose the principles of Perceptionalism to those of the Sensationalism, the Materialism, the Idealism, and the Pantheism of our age. For no one grounded in the right doctrine can allow that cognition is merely refined sensation, or that spirit is a development of matter, or that thought can be identified with its objects, or that there is only one substance. We believe that the inadequacy of these views will become more and more apparent as the analyses of Perceptionalism shall be more thoroughly considered. We even venture the hope that certain philosophers, who occasionally suggest that their theories would be accepted universally if only ordinary mortals had the ability to understand them, may be aided, by the teachings of Perceptionalism, to a clearer comprehension of the truth.

18. Some of the doctrines of Perceptionalism have now been stated briefly. The object has been to present them for attentive and studious consideration. It is hoped that persons interested in philosophy may find time to compare these doctrines with those of existing systems.

We now present that tabulation of judgments promised in section 15 of the present writing.



BELIEF OR CONVICTION
is either

ACTUALISTIC or **HYPOTHETICAL.**

ACTUALISTIC
Asserting fact.

HYPOTHETICAL.
Differing from actualistic, not in the form of thought and sequence, but by reason of its peculiar provisional mode of conviction ; it is all inferential, but from a *supposed* antecedent.

PRESENTATIONAL.
(*e. g.*, This line is white and straight.) The perception of presented fact ; primordial cognition.

INFERENTIAL.

APODEICTIC.
(*e. g.*, That coin must be gold. That line is, and must be, the shortest.) From an actual antecedent.

PROBLEMATIC.
(*e. g.*, That coin may be counterfeit.) Contingent inference from an actual antecedent.

INFERENCE OF POSSIBILITY.
(*e. g.* He may have entered by that door.) From the existence of a condition, or of conditions, of a thing.

INFERENCE OF PROBABILITY.
From the perception of chances.

PROBABILITY PROPER.
The ratio of the chances being determined more or less definitely.

CONTINGENCY PROPER.
The chance-ratio being undetermined.

INDIVIDUAL INFERENCE.

GENERAL INFERENCE.
Essentially Hypothetical as setting forth some law of logical connection and rational sequence.

APODEICTIC.
(*e. g.*, If that man sin, he will suffer.)

PROBLEMATIC.
Differs from actualistic problematic inference in having antecedent and consequent hypothetical. (*e. g.*, If that man be wounded, he may die.)

POSSIBILITY.
N. B. All hypothetical inference is to be explained by reference to actualistic.

PROBABILITY.
To be divided in the same way as actualistic probable inference above.

HYPOTHETICAL IN FORM.

CATEGORICAL IN FORM.

APODEICTIC.
(*e. g.*, If one sin, he must suffer.)

PROBLEMATIC.
(*e. g.*, If one be wounded, he may die.) Subdivisible in the same way as problematic inference, actualistic and hypothetical, above.

MODAL OR CONDITIONATIVE.

PURE OR DOGMATIC.

APODEICTIC.
(*e. g.*, The sinner must suffer.)

PROBLEMATIC.
(*e. g.*, A wounded person may die.)

UNIVERSAL.
(*e. g.*, All sinners suffer.) Essentially apodeictic.

PARTICULAR.
(*e. g.*, Some wounded die.) Essentially contingent.

In explanation of the foregoing tabulation of judgments, the following remarks may be serviceable: —

1. The term "judgment" is here used in its wide logical sense for the act of the mind in forming any kind of conviction from mere presumptive or probable belief up to, and including, absolute knowledge, — in other words, for mental assertion.

2. The table assumes that every judgment or cognition is (not a synthesis of conceptions, but) a putting forth of mental confidence, — the formation of belief or conviction, — in connection with the thought of a thing as existing or as non-existent.

3. Every judgment in the table may be either affirmative or negative; and, in another and more complex relation, every judgment, whether affirmative or negative, must be either true or false.

4. The table illustrates the philosophical importance of inference. Every judgment in it, excepting only the presentational, is illative, and follows the law of antecedent and consequent.

5. Moreover, all these inferential judgments in their essential nature are modal and set forth an apodeictic or a problematic sequence from antecedent to consequent. Even the pure categorical judgment, as expressing a general truth or law of inference, sets forth necessity when it is universal, and when it is particular, contingency. The pure categorical, therefore, must be explained from the modal, and not the modal (nor the hypothetical) from the pure. These principles involve a considerable modification in the theory and treatment of the Aristotelian syllogism.

6. With the foregoing table, compare that of Kant, who says that "the function of thought in a judgment can be brought under four heads: (1) QUANTITY, either (a) *universal,* (b) *particular,* or (c) *singular;* (2) QUALITY, either (a) *affirmative,* (b) *negative,* or (c) *limitative;* (3) RELATION, either (a) *categorical,* (b) *hypothetical,* or (c) *disjunctive;* (4) MODALITY, either (a) *problematical,* (b) *assertorical,* or (c) *apodeictical;*" and who teaches that these twelve modes of judgment result from the synthetic use of twelve modes of *a priori* or transcendental conception which he calls "*categories.*"

The categories, like the forms of judgment which they are to explain, are given in sets of three each. We have "Unity, Plurality, and Totality," "Reality, Negation, and Limitation," and so on. Let any one take these "fundamental conceptions" and endeavor to understand the true nature of our judgments by means of them. He will soon find himself lost in a confusion of indistinct and irrelevant thinking. No theory can explain the phenomena of Judgment which does not distinguish between Thought and Belief (or Conception and Conviction), and which does not teach that judgment is the assertion, mentally, of the thought of the existence, or of the non-existence, of something.

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THE PERCEPTIONALIST;

OR,

MENTAL SCIENCE.

CHAPTER I.

MENTAL PHILOSOPHY AND ITS METHODS.

Mental philosophy defined: a department of psychology.

1. MENTAL philosophy is the science — that is, the accurate and systematized knowledge — of the intellect. When scientific knowledge is thorough and satisfactory, we know not only what a thing is, but also what it has to do with other things, and especially how it comes to be what it is. In other words, we know not only the nature of the object, but also its relations to other objects, and especially to the conditions of its existence. Mental philosophy, therefore, considers not only thought in its various forms and developments, but also the conditions on which these depend, and all the various relations of thought.

In speaking of scientific knowledge as thorough and accurate, we do not claim for it absolute perfection, but only such excellence as care and diligence are able to attain. Great alterations have been made of late years in the natural sciences, — for example, in geography, geology, chemistry, and physics; nor does any one claim that no further progress is possible in the knowledge of the material creation. In like manner important changes have taken place in those sciences which relate to the life of spiritual beings; errors have been eliminated, doubtful questions settled, and new doctrines established. The metaphysical, logical, ethical, and political teachings of the present century differ greatly from those of ancient times, though not, perhaps, so much as the physical science of to-day differs from the theories of three centuries ago. In ascribing to mental philosophy a scientific character, we claim only that this philosophy contains a well-ascertained and reliable system of doctrines, and that it is progressing — though, it may be, somewhat slowly — in the settlement of disputed questions.

This philosophy is a department of psychology, which embraces also the philosophy of sensation, and that of the emotional and motive powers of the soul, and that of the will. The mind, or intellect, is not an existence separate from the will or from the heart; but, like each of these, it is simply the soul, or the spirit, viewed with exclusive reference to one set of its powers. The same object may be denominated in different ways, as it may be viewed in different lights. Thus the same person may be spoken of as the judge, the law-giver, and the king of a people. The word "intellect" was originally applied to that higher power of thought to which we commonly give the term "understanding," and which is an ability to perceive not merely objects and facts, but also the reasons and relations of things. Now, however, it is often used so as to cover every form of the power of thought from the highest to the lowest, and is applied to the soul as having this general power; in this sense it corresponds exactly with the word "mind."

Mind, or intellect, defined.

Some define mind, or intellect, as the power of *knowing;* we prefer to say that it is the power of *thinking.* This difference primarily regards terms, yet even in this respect has some importance. A wrong use of terms is always perplexing, and frequently results in error. The words "knowing" and "knowledge" should not be generically applied to the phenomena of intellect, because we are conscious of various states and acts of mind which we naturally distinguish from knowledge, and deny to be knowledge; for example, suppositions and imaginings. But there is no mental state or operation which might not be characterized as thought or thinking, or at least as involving thought or thinking.

It is true that the word "thought" is sometimes used in specific senses; for example, one might say that he thinks, but that he does not know, that a certain piece of coin is counterfeit. Thinking, when thus contrasted with knowledge, signifies an imperfect and less confident kind of conviction. But at the same time it is true that when we know, we have a thought — a conception — of that concerning which we know; and thinking, in this sense, is *always a part of knowing.* Again, the word "thought," used emphatically, may signify an attentive and rational exercise of the intellect. We speak of persons as thoughtful and as thoughtless, just as we speak of a man of mind and of a man without mind. We say, "Sits, fixed in thought, the mighty Stagirite." Here is another special sense, with which, however, the more general meaning coexists; for even the most thoughtless person is not without some form and degree of thinking.

We do not say that thought, even in the wide sense, is the only form of mental action, but that, in all cases of mental action which are not thinking, thinking is involved or presupposed as a condition; and that for this reason the intellect may properly be designated the power of thought.

Mental philosophy recommended.

2. Some intelligent persons entertain a prejudice against mental science; they regard it as obscure, unsatisfactory, and without useful application. It must be allowed that various metaphysical systems have been composed which are profound only in the sense of being hard to understand, and whose doctrines, when ascertained, are simply pernicious delusions. We cannot expect people to spend much time in endeavoring to comprehend the absurdities of false philosophy. But it is evident that *the rejection of all study of supersensible things could be justified only on the supposition that the phenomena of mind or spirit are beyond the reach of careful and accurate investigation.* Otherwise we wilfully turn our thought away from that nobler part of being to which we ourselves belong, and in whose life of thought, enjoyment, choice, duty, and affection the ends of all existence are to be realized. Now the facts of psychical experience, so far from being removed from our inspection, are subjected to our immediate cognition, and are perfectly within the range of our attention and inquiry. They have been found difficult of observation and analysis, yet not so difficult as to prevent the formation of an excellent body of philosophy. Every earnest student can now find in mental science an ennobling and satisfying pursuit.

Psychological studies, moreover, are as useful as they are noble. If their only utility were to satisfy a thirst for knowledge, and to occupy the mind with pure and elevating thoughts, this of itself would be a great benefit; but they have value in other respects. The mental strength to be obtained from metaphysical pursuits is one of their chief recommendations. Perhaps no other employment contributes so effectually to develop those powers of penetration and discrimination which are the chief elements of intellectual manliness and maturity. Then, too, psychology is the necessary foundation for those arts and sciences which pertain to the proper use of the various faculties of man. It is a study indispensable to those who would improve and perfect such sciences, and of great assistance to all who would obtain a satisfactory understanding of them. Logic, which treats of the correct use of the rational faculty, is a direct outgrowth of mental philosophy, and is constantly receiving important modifications from the latter science. Ethics also, especially in its more fundamental discussions, is based on a searching analysis of certain mental workings. Similar remarks apply to æsthetics, or the philosophy of taste, and to rhetoric, which is the science of the pleasing and the persuasive in human thought and speech.

A wise system of education must be regulated by a true psychology. Whether we would establish efficient schools for the young, or in a more general way subject ourselves and others to wholesome formative influences, we should seek the advice of mental philosophy.

This science, too, throws great light on theology. It is the indispensable servant of theology. To understand Deity, we must understand man. In short, every science which in any way involves a consideration of the laws of spiritual existence finds a powerful assistant in the general philosophy of mind.

The Baconian method.

3. An instructor in any abstruse study should be able to form and to express positive convictions. At the same time he should avoid even the appearance of dogmatism, and should endeavor to show that his views are reasonable. Especially he should make known the method by which his system of doctrine has been constructed, so that others may judge whether the method be a correct one; and, if so, whether in any case he has departed from it.

Without method no satisfactory progress can be made in philosophical investigations. The importance of it cannot be over-estimated, and has always been acknowledged by thinking men, but more especially since the true method was illustrated and advocated by Lord Bacon. The system inaugurated by this distinguished man is founded on the evident truth, that, as philosophy aims to explain facts, so it should seek that explanation in a questioning of the facts themselves.

From this principle two modes of work originate, the first and more rudimentary of which is preparatory to the other. The primary philosophy merely observes facts and classifies those which are similar, and in this way obtains general facts, which are also the expression of certain laws or modes of Nature; the more advanced philosophy carries on the investigation by analyzing the general facts already secured and co-ordinating their essential elements. By means of it we reach more profound and satisfying laws.

Thus Newton, analyzing those laws — of falling bodies, of planetary motions, and of projectiles — with which he was already familiar, discovered the more fundamental law of gravitation, which enters into these, and which continually operates on matter everywhere. In like manner Sir William Hamilton, following the suggestions of earlier writers, has resolved those various laws of the association of ideas, which careful observation had established, into the comprehensive law of redintegration; that is, that the mind tends to repeat fully any complex operation which it may formerly have experienced, and which it has now in any degree begun. In short, the laws of psychical no less than those of physical Nature are to be learned through the ascertainment and co-ordination, the analysis and generalization, of facts. Such being the case, the student of philosophy may boldly question any doctrine, though upheld by the highest ability and learning, which can claim no record of experience or observation in its support, and as confidently hold any opinion sustained by accurately recorded and carefully analyzed phenomena.

The importance of these principles. Platonism.

4. The statement that facts are the necessary foundation for philosophy may seem to some too evident to require emphasis. But the neglect of it in times past, and even in our own day, has been the source of many and great errors. The metaphysical worthlessness of almost all the ancient and of much of modern philosophy originates in the admission of high-sounding notions, the truth of which never was proved, and never could be proved, from any examination of things really existing. Only fanciful and unsatisfactory systems could be constructed after such beginnings. Plato and his followers, in ancient days, carried out the separation of philosophy from actuality more fully than any other class of thinkers; and, in modern times, this has been done most signally by the German idealists. Plato adopted the principle that general or universal ideas are the only proper sources of knowledge and objects of study. The individual or specific he rejected as transitory and, in a sense, unreal. Such a commencement destroyed the possibility of progress. A revival of these Platonic views in an exaggerated form gave rise to the systems of Spinoza, Fichte, Schelling, and Hegel, by which the thought of continental Europe was powerfully debauched. These philosophers, being too wise to appeal to experience, sought truth by the "immediate beholding of reason," and evolved it out of "the depths of their consciousness." The spirit of Hegelianism, even at the present time, may be inferred from the condemnation, by Dr. Schwegler, of Lord Bacon, as "the author of scientific empiricism," and by his contemptuous assertion regarding Locke's philosophy, that its "empiricism is clear as day." It is a strange perversion of judgment when learned men condemn a philosophy on account of its chief excellence, and simply because it has been carefully deduced from facts!

Aristotle and the schoolmen.

Of those investigators, ancient and modern, who have rejected Platonic methods as dreamy and mystical, very few, until comparatively recent times, have systematically based their doctrines on the analysis of observed phenomena. Aristotle, the illustrious rival of Plato, did not do so. The acuteness of this great man cannot be over-estimated, but the intrinsic value of his metaphysical writings has been grossly over-estimated. He did, indeed, recognize the truth that *all our general knowledge is an induction from the observation of particulars;* yet he did not sufficiently perceive the practical importance of this principle, — that it is the only true starting-point of all philosophy. The patient reader of his works can see that he has accepted from previous teachers many absurd doctrines which admit of no proof, and that he forms his own theories depending, first on his own penetration, then on the opinions of preceding philosophers, then on the logical support which other doctrines may give the one under discussion, and then, last and least of all, on facts. Remarks similar to these might be made respecting the schoolmen of the Middle Ages, and regarding the authors of some famous systems of speculation. We might also trace the progress of the last few generations, in psychology, to a more faithful observation and a more patient analysis of mental phenomena than were formerly attempted.

Induction and analysis.

5. The Baconian method of philosophizing is termed "The Inductive System," because the induction of principles from facts is its distinguishing characteristic. This work largely consists in the observation and classification of facts as similar. But it includes more than this: it reaches from the past to the future, from that which has been seen to that which has not as yet been seen; and, indeed, the most essential part of it is the exercise of a power of judgment natural to us. Every fact, that is, every causal fact — for of such only we speak at present — consists of certain antecedents and consequents; and it is an intuition of the intellect that similar antecedents must be accompanied or followed by similar consequents. Whenever a fact seems to contradict this principle, it is because some element which should exist in the antecedent to make the case similar to one previously observed, has escaped observation, and is not seen to be wanting. Thus, by means of an inductive judgment, the observation of *facts* results in the ascertainment of *laws*.

But, in the conjunction of circumstances which make up the antecedent in any particular fact, some circumstances only are essential elements of the antecedent; others are merely accidental and no part of the true cause. Hence the necessity of *analysis*, — of discrimination, — without which induction alone could not obtain the exact statement of any law. Moreover, as the laws of existence do not operate singly but in combination, there is yet more need of analysis to resolve these combinations, and in this way to ascertain laws which are simple and ultimate.

In the ruder attainments of philosophy induction is more prominent than analysis, — the latter takes place spontaneously, — but in the more abstruse inquiries this state of things is reversed. It is difficult to say whether of the two is more necessary to philosophical progress. They are equally the indispensable instruments of science. All the rules of philosophizing simply assist and direct us to the successful employment of these two modes of thought.

CHAPTER II.

THE SOURCES OF PSYCHOLOGICAL INFORMATION.

1. As science arises from the investigation of facts, an important question with respect to any department of knowledge is, whether there be abundant and reliable sources of information. In this respect the mental philosopher is peculiarly fortunate. The study of psychical phenomena demands attention and thoughtfulness; and it is a work of some difficulty to those unaccustomed to it, just as reading or mental application of any kind is commonly irksome and laborious to uneducated persons. Yet the student of mind has this great advantage, that the operations and states of this wonderful agent are continually subject to his observation, and even, in a considerable measure, to his control. Besides, the facts thus submitted to him are those respecting the truth of which it is impossible to entertain a doubt. The most extravagant sceptic cannot question the existence of those thoughts, feelings, wishes, and actions which constitute his restless life of unbelief.

The radical source of information.

The radical source of all information regarding mind is consciousness, or that immediate knowledge which the mind has of its own states and operations. All other means of knowledge are of use only as they co-operate with this. Our knowledge, through consciousness, of the nature and workings of our own spirits is our only means of understanding the life of other spiritual beings and of comprehending the indications of their psychical activity. Each of us, knowing what passes within his own bosom, learns to understand the experience of others. A child not more than two or three years of age can speak of its thoughts and affections, wishes and pleasures, pains, hopes, and disappointments; and knows, also, that others are similarly exercised. This statement can be easily verified: question the little prattler, and you will find that he uses terms expressive of mental, just as intelligently as those indicative of bodily, operations. And these cognitions of spirit, thus early begun, are continued throughout life, pertain to every form of experience, and are free from all uncertainty.

Two important difficulties are to be encountered in using the testimony of consciousness.

In the first place, the changeful rapidity of our psychical operations interferes with the steadiness of our gaze. What the poet says of pleasures is true of mental phenomena in general; they are

> "Like that Borealis race
> Which flit ere you can point their place."

And even when the current of inward life is partially arrested, that special phase of experience which is made the object of scrutiny often changes its nature while we are endeavoring to look upon it. The feeling grows cold; the mental image becomes dim; the concrete practical notion resolves itself into its elements. Psychological facts call for a keen and quick observation. They resemble those sea-birds which are ever on the wing,—which move even while at rest, and must be shot while flying.

The second hindrance experienced in using the testimony of consciousness arises from the impossibility of proving the correctness of one's observation by exhibiting to others those phenomena which are visible directly only to one's self. This difficulty is more formidable in appearance than in reality. The earnest and patient student can generally sympathize sufficiently with his teacher to understand and appreciate an appeal to consciousness. Nevertheless, there is here some opportunity for difference; the disputatious opponent and even the honest inquirer may sometimes say, "That may be your experience, but it is not mine."

Secondary sources of information. Language.

2. Because, therefore, of the subtile and evanescent character of mental phenomena, and because of the impossibility of presenting the facts of consciousness to the immediate observation of others, great value attaches to certain indirect revelations of mind, which are subject to public and general scrutiny.

The most important of these is language,—that marvellous instrument, the expression and embodiment of human thought.

Not only every word, but also every change, construction, and combination of words, in language, represents some form or mood of man's intelligence. And so well suited is this instrument for its office, that no idea, however delicate, which may have secured the interest of men, fails of expression in their speech. He who has mastered the vocabulary and linguistic forms of any people has obtained a perfect measure of their mental development. Moreover, every word in any language has a certain fixed meaning, which can be ascertained; and this circumstance is of great assistance when we would study the thoughts of men. For the transitory idea is made fixed and permanent by its sign, and is shown also to be an existing reality. No matter how much we may question the truthfulness of any conceptions, we cannot deny the existence of the notions themselves if they only have become established in the speech of any people. The relations of words, also, illustrate the relations of ideas; so that many points concerning the contents and combinations, changes and successions, agreements and differences, of thoughts can be understood better through a critical study of language than in any other way.

The accomplishments and deeds of men.

Another source of information is found in those voluntary actions, labors, and accomplishments which result from mental activity. Every human being has the power of perceiving both his own actions and those of his companions; and as he refers his own conduct to his own inward life as its cause, he intuitively adopts a similar rule with regard to the conduct of others. Moreover, as different thoughts and aims result in different actions corresponding to them, we learn to use specific deeds as the indicators of specific thoughts. Sometimes the thoughts of men are even better understood from their actions than from their language. We not only trace actions to thoughts; we also ascribe accomplished results to actions. This is a yet greater exercise of mental penetration; and by means of it we can perceive most plainly the former presence and activity of departed laborers. Beholding a field fenced and tilled, we are as sure that husbandmen have wrought in it as if we had seen them with our eyes. Nor is it necessary to such a judgment that we should have previously witnessed the performance of a work in every respect the same as that submitted to our consideration. There is need only of an *essential* sameness or similarity. One who might be acquainted with the manufacture of locomotives, but who had never seen a steamship, could affirm, on an inspection of the latter, that it was the product of a similar exercise of intelligence, and intended for a similar purpose. In like manner we think that there is as much evidence of design in the sting of a wasp as in the barbed and poisoned arrow of a savage, and that there is more proof of skill and wisdom in the formation of the eye than in the construction of the telescope. All investigators of mind, from the earliest ages, have learned much respecting the existence and the activity of intellect from its manifestations in human life and history, and in the mightier works and ways of the Supreme Being.

Works of literature. Many data of mental science may be obtained from works of literature. These themselves are the productions of intellect, so that every volume may be studied as well with reference to the mind of the author as with reference to the subjects treated. What wonderful powers, what interesting operations, are revealed in the orations of Cicero and Demosthenes, in the poems of Homer and Virgil, in the discussions of Plato and Aristotle! Besides, by the labors of men of genius, the varying phases of human thought and life, the history of man's past experience and achievements, and the peculiarities of the different races inhabiting the earth, have been carefully represented, recorded, and discussed. The writings of such men — poets, dramatists, historians, philosophers — yield us great *direct* assistance.

Physiological phenomena as connected with pyschical. Phrenology, etc. 3. The study of certain bodily phenomena, as being more or less closely connected with psychical states and operations, is another source of philosophic information, to which, however, some have ascribed undue importance. The influence of health and of disease upon mental vigor, the effect of severe study or of strong passion on the physical frame, the connection of sensation and of sense-perception with the nervous system, and the general dependence of psychical activity upon the condition of the brain, are topics deserving of earnest consideration. It is only through an investigation of these topics that we can determine those laws by which soul and body are united in one life. At the same time we have the following remarks to make.

First, it is clear that *no study of physical phenomena can, of itself, reveal the phenomena of spirit.* No thought, feeling, or desire can be discerned by any of the senses. No one has ever seen, touched, or handled these things, or made any approach to doing so. Our knowledge of the relations of soul and body is not founded on a perception of bodily changes alone, but quite as much on our consciousness of mental states and operations. If we were not first cognizant of inward experiences, we never could think of their connection with our outward and corporeal life. A scrutiny of the teachings of consciousness is, therefore, a necessary requisite for the successful prosecution of phrenological or similar studies. Mere anatomical investigations, however skilfully conducted, must be useless, even for those purposes in mental science which they may properly promote, if the questioning of consciousness be carelessly or imperfectly performed.

In the next place, the psychical laws connected with these physical phenomena *are not the laws of spirit viewed simply as spirit, or essentially;* they are only the laws affecting the soul in its connection with the body. The former, which are the more numerous and influential, can be ascertained solely by the questioning of the facts of consciousness as directly or indirectly revealed; the main work of the mental philosopher has respect to them. The latter — that is, the laws affecting the spirit as embodied — form only a secondary, though important topic of study.

Finally, it is to be noticed that, while the more general and fundamental laws of the causal connection between soul and body have been tolerably well ascertained, *little has been determined regarding the special modes in which these laws operate.* Sense-perception, on the one hand, handling and dissecting the body, and consciousness, on the other, reflecting on the soul and its activities, disclose to us two very different objects. Hence we distinguish mind from brain, and from aught else material, as clearly and as easily as we distinguish the coiled electric wire from that subtile agency which lives and works within it. After this, observation and induction show that soul and body, through different parts of the nervous system, are continually acting on each other in various ways. But when we ask *in what manner* brain and mind affect each other, — by what means mental excitement may cause cerebral disturbance, and cerebral disturbance mental excitement, — in what way each sensory nerve produces its peculiar and appropriate sensation, — or what may be the several offices of the different ganglia and other portions of the brain, the investigation becomes difficult. The attempt to solve such questions as these has often resulted in discouragement to the patient investigator; and most of the answers which have been offered to any of them must be regarded as merely conjectures of greater or less probability.

We think, therefore, that those commit a mistake who say that certain physiological and anatomical researches are the only or chief sources of psychological knowledge. Such studies of themselves can impart no information as to the mind and its workings. Even when properly conducted they do not disclose any of the essential laws of spirit, but only those affecting the soul as embodied. And so far as they concern specific instruments and modes of operation, they have, as yet, made very moderate progress. At the same time, while rejecting the doctrine of the dependence of mental philosophy on physiological facts or theories, we would not be understood to deny the importance of the specific inquiries already mentioned, nor yet the indebtedness of psychology to anatomical science for much most valuable information.

The value and use of human beliefs simply as facts.

4. The beliefs and judgments of our fellow-men are frequently referred to by writers in mental science. These judgments often prove incorrect, and are not always reliable even in matters apparently simple. Yet the consideration of them is a source of assistance to which the true thinker, however self-reliant he may be, constantly and seriously applies. There are two ways in which a reference to the beliefs of men is of prime importance in philosophy. In the first place, we may regard these beliefs simply as psychological facts, and we may endeavor to ascertain them accurately and to explain the laws of their formation. It is from this point of view that we begin the work of solving that most fundamental problem of philosophy, namely, that of determining those general modes of conviction which, by reason of an innate intellectual necessity, are invariably followed by the human mind. And any law regulating the formation of beliefs and explaining the causes of error or the progress of knowledge can be properly learned only by a critical examination of the facts of experience.

The authoritative value of the opinions of others: of men in general; of philosophers.

Again, the convictions of others are important to the investigator, not simply as facts for study, but as opinions endowed with more or less authority. This use is related to the first, but is clearly distinguishable from it. Very diverse estimates have been put both on the views of learned and scientific men and on the beliefs and judgments of men in general. Some have held to the absolute truth of any universally entertained opinion. They have asserted, too boldly, that the voice of the people is the voice of God. Others, despising the conceptions of the vulgar, as concerned only with the appearances of things, have ascribed wisdom to philosophers alone. Their doctrine is, that the vision of the real, the true, the eternal, is granted to wise men; the mass of men see merely the uncertain and transitory, and do not penetrate to the essence of things. The truth is, that within certain limits the convictions of mankind in general should have great authority, while beyond those limits the opinion of the people, as opposed to that of the learned, is of very little weight.

Those facts (or phenomena) *which are immediately subject to the perception of sense or consciousness* can be witnessed as well by the uneducated as by the scientific; the general testimony of men concerning such facts must be received without question, provided only that it first be accurately ascertained and understood. We must believe with all men that the world around us exists, and that we exist in it; that we have bodies gifted with certain powers and capable of certain affections; and that we have souls, also, which think and feel, resolve and act. These are matters of immediate, as distinguished from discursive or rational, knowledge.

Moreover, in such practical affairs as involve *questions of advantage and disadvantage which are not complicated*, the judgment of communities is commonly correct and wise. Interest sharpens the understanding for its own service; and when questions of profit and loss have been determined by the best minds of a community according to the teachings of experience and in a way satisfactory to all, we can depend confidently on the result. The customs of a country, though sometimes ridiculous in the eyes of strangers, are generally just what that country needs. Travellers bear witness to the sagacity with which the modes of business even of barbarous tribes are adapted to their rude condition. The following is an extract from Dr. Livingstone's account of the Bakwains, who live in the interior of Africa. "In general," he says, "they were slow, like all African people hereafter to be described, in coming to a decision on religious subjects; but in questions affecting their worldly affairs they were keenly alive to their own interests. They might be called stupid in matters which had not come within the sphere of their observation, but in other things they showed more intelligence than is to be met with in our own uneducated peasantry. They are remarkably accurate in their knowledge of cattle, sheep, and goats, knowing exactly the kind of pasturage suited to each; and they select with great judgment the varieties of soil best suited to different kinds of grain. They are also familiar with the habits of wild animals, and, in general, are well up in the maxims which embody their ideas of political wisdom." *Public opinion, also, should have considerable weight in moral discussions;* though, on account of various disturbing causes, it is not so reliable as in cases of interest. In consulting it on a question of duty we should especially inquire whether the conviction be not only general, but also deliberate, disinterested, and enlightened. But, clearly, those rules of right conduct which all men everywhere approve and uphold must be founded on good reasons.

In general, we may say that the farther questions are removed from facts of common observation, or from those more evident laws which are little more than the generalization of such facts, the less we can rely upon the utterances of the common voice. Hence the necessity, when appealing to what has been called "the common sense" of men, of distinguishing between the perception of phenomena and the explanation of them. All men everywhere know of the existence of the sun, moon, and stars, and of their daily and nightly appearance and disappearance. Their testimony as to the existence of these phenomena is reliable. But their judgment regarding the size of the heavenly bodies, and as to the nature of their motions, may be questioned. All men once believed that the sun revolved around our earth.

Those who can accept the views now expressed regarding the convictions of the generality of mankind will probably approve of views, somewhat corresponding to them, concerning *the opinions of scientific men.* We cannot join with those who despise philosophers as dreamers and theorizers, and who boast "common sense" and "experience" as their only guides. The vain self-sufficiency of such persons should be humbled by the consideration that almost all the great elements of modern civilization are the offspring of philosophy and science. The implements, the inventions, the usages and laws, the ideas and institutions, which distinguish us from savages, once were the property of only a few thinking men. The material, moral, and political progress of the world depends, under God, on its men of thought and learning. While, therefore, the philosopher is no greater authority in matters of fact than his fellow-men, and while his practical judgment is often inferior to that of men in active life, his opinions concerning those questions which he investigates are not to be lightly rejected; and any general agreement in the world of philosophy is a very weighty presumption, indeed, either for or against a doctrine.

Who now questions the Newtonian theory of the solar system? Who doubts the ordinary analyses of chemistry, or statements of geology? And who rejects the explanation of sense-perception, of dreams and fantasies, of general notions, and of the reasoning process, given by psychology? It is true that even the weightiest of human opinions have only a provisional authority, and that no one who can investigate for himself should accept, without examination, the statements of others. But for many this is impossible: they are otherwise and fully occupied; their talent lies in some other direction, or the means of research are not at their command.

Besides, a knowledge of the achievements, and even of the failures, of preceding laborers is indispensable to those who would carry on a work which has already been begun; so that the philosopher himself, who seeks for independence and originality of view, must study with care the efforts of his predecessors. If he do not, in all probability he will neither avoid their mistakes nor equal their attainments.

CHAPTER III.

PRIMARY CLASSIFICATIONS.

1. OBJECTS which possess a common nature may be variously classified according to their agreement and difference in some one or other important respect. This may belong either to their internal constitution or to their external relations. Thus mankind may be classified according to race, or language, or country, or degree of enlightenment, or religious creed, or sex, or age, or occupation. Such classifications are called logical divisions; and they contribute greatly to clear, systematic, and comprehensive thought. The study of mental philosophy naturally commences with some such distinctions. First, *let us divide the powers of the soul*, so as to separate and distinguish the intellect from the other powers, and, after that, *let us divide the powers of the intellect*, so that each of these may receive its due attention.

The old division of psychical powers into the understanding and the will was that employed by the philosophers and theologians of the Middle Ages, and perhaps served sufficiently well for their peculiar discussions. Our earlier English writers, also, whose attention was devoted chiefly to the intellectual powers, contented themselves with this division. Locke did so; and Reid, the illustrious founder of the Scotch school of philosophy (he lectured in Glasgow during the middle of the eighteenth century), expresses himself thus: "There never has been any division of the powers of the mind proposed which is not liable to considerable objections. We shall therefore take that general division which is most common, — into the powers of understanding and those of will." But afterwards, in his second essay on the will, he condemns this division. "Some philosophers," he says, "represent desire, aversion, hope, fear, joy, sorrow, all our appetites, passions, and affections as different modifications of the will, which I think tends to confound things which are very different;" and he remarks that things which have not a common nature should not be confounded under one name.

The dissatisfaction thus expressed, being generally felt, resulted in that threefold division which is now commonly made. "Our conscious acts or states," says Dr. Porter, "are separated into the three broad and general divisions of states of knowledge, states of feeling, and states of will. To know, to feel, and to choose are the most obviously distinguishable states of the soul. These are referred to three powers, or faculties, which are designated as the intellect, the sensibility, and the will. This threefold division is now universally adopted by those who accept any division or doctrine of faculties."

Objections to the common division: 1. No separate place for the power of sense.

Nevertheless, for several reasons, we cannot regard this threefold division as sufficient and satisfactory. First of all, it seems a serious defect that no separate place is allowed in it for the power of sensation, and that on this account the discussion of the subject of sense is made to fall under the head of intellect. The former of these powers presents objects to the latter, and contributes a stimulus to its exercise; but they are radically different from each other. The treatment of them together, under the same division of thought, favors the materialistic doctrine that intellect is but a modification or development of sense.

Sensation is essentially diverse also from that emotional feeling which the perception or remembrance of objects often excites; although, we think, it might as well be classified with emotion as with intellect. It differs greatly, and perhaps equally, from both; and if this be so, ought not sense to be reckoned an independent power?

2. Motivity not sufficiently distinguished from emotion on the one hand, or from exertion on the other.

Secondly, this division makes no distinct place for desire, or, using a more comprehensive term, for that motivity by reason of the exercise of which the spirit of man seeks various ends. The motivities constitute a marked and important class of pyschical phenomena; they include the instincts and appetites, the propensities and passions, the affections, and such active principles as self-interest, public spirit, rational benevolence, a sense of duty or of justice, and the love of what is right and good. Some authors, as Drs. Upham and Haven, place *motive tendencies and emotions* together under the head of "sensibilities." Sir William Hamilton, on the other hand, unites *will and desire* together as the third grand division of spiritual life, and calls them "the exertive faculties." Were a choice necessary, we would rather classify motivity with will than with the emotional power; and to this last, exclusively, we would assign the term "sensibility." But we prefer to consider desire, or motivity, as itself an elementary power, which should be distinguished from every other.

3. The will should not be regarded as a simple power.

This leads to a third objection. The threefold division is professedly a generic classification of our powers, not as these exist and operate in combination, but as they are seen after an ultimate analysis. In other words, it is given to represent only simple and undefinable elements of our conscious spiritual life. Now, with Brown and Hamilton and other older metaphysicians, we believe that there *is* something in volition of the nature of motive tendency. At the same time we hold that volition contains more than motivity; that it is a combination of intellect and motivity under special and modifying conditions. For this reason we cannot regard volition as being a simple and fundamental power, nor even as being a specific form of such a power. Intellect comprehends sense-perception, consciousness, memory, reasoning, imagination, and so forth, but cannot include volition, determination, or purpose, because, although these last contain an intellectual element, they have also, essentially, a quality not intellectual. In like manner, motivity may be divided into appetite, propensity, affection, self-interest, public spirit, and so on, but must be separated from decisions, intentions, and resolutions, because these are characterized by a peculiar exercise of the intellect which distinguishes them from mere motivities. Therefore we incline to exclude the will from our radical division of psychical powers, and to treat it as a complex faculty. Yet, if any hold fast to the belief that the will is a simple power, and in its essential part incapable of analysis, this view also leads to a more than threefold division; for, after sensation, intellect, emotion, and motivity, volition would come as the fifth radical mode of conscious life.

4. The distinctive character of exertion, or action, overlooked.

Again, we object to the common classification that it does not recognize, as a fundamental power, what may be called the faculty of exertion, or of action; for every exertion is an action when it is successful in accomplishing some result. This power is generally included under that of will. Dr. Haven thus describes "the third form of mental activity:" "Thought and feeling lead to action. I resolve what to do. I lay down my book, and go forth to perform some act prompted by the emotion awakened within me. This power also I have; the faculty of voluntary action, or volition." But we distinguish easily the volition, or determination to act, from the action which we resolve and purpose to do. Intentions and deeds are things radically diverse.

The language of Reid applies here: "Things that have no common nature ought not to be confounded under one name, or represented as different modifications of the same thing." Therefore, among the simple powers of the soul, we would place that of action, or of exertion; or, to use terms of Hamilton's, the exertive, or conative, faculty. But it should be stated that while Hamilton employs this language, he does not specify any such power as that now mentioned. He rather *identifies* desire, volition, and conation, as to their essential nature, by making them the manifestations of the same general power. In our view, these activities, though closely connected with each other, differ radically as to their internal character.

5. The capability of pleasure and of pain should be recognized as a fundamental power.

Our concluding objection has reference to the phenomena of pleasure and pain, and to the power or capability which the mind has of experiencing these phenomena. This power has no proper place in the common division. It is true that pleasure and pain have not so independent an existence as the other activities of mind. Happiness is a kind of aroma which accompanies a well-ordered and well-sustained life; misery is the effluvium of an ill-regulated life. Nevertheless, these phenomena should be distinguished from those which they attend, and especially from those to which they are most intimately related. We object to Hamilton's classification of them with our emotions or sensibilities. The pleasure or pain of an emotion should be distinguished from the emotion itself, just as the pleasure or pain of a sensation should be distinguished from the sensation itself. In short, these subtile concomitant modes of experience arise not only from our sensations and emotions, but also from our thinkings, desires, volitions, and actions; that is, they flow from, and attend, every mode of psychical activity. If, then, we distinguish the experiences of sense and thought, of motive feeling and of exertion, from their attendant pleasures and pains, we certainly should make a similar distinction with reference to emotion.

No investigation of psychology is more interesting than that which, commencing with pleasures and pains, goes on to seek the general nature and causes of happiness and misery; and perhaps none as yet is so undeveloped. Some theories have been proposed to solve its questions, but no doctrine has secured general approbation. The distinction of pleasure and pain from other phenomena, and the recognition of them as having a nature and laws of their own, are plainly a necessary condition of progress in this important philosophical inquiry.

A new division proposed.

2. If the foregoing objections be well founded, they call for a new enumeration of the fundamental powers of the soul. We propose the following sixfold division: first, sensation, or sense; secondly, thought, or intellect; thirdly, emotion, or sensibility; fourthly, desire, or motivity; fifthly, exertion, or conation; and sixthly, the capability of pleasure and pain. Each of these powers has characteristics of its own. For example, sense is distinguished by its peculiar and inherent dependence upon material excitants and bodily organs. Intellect is the most prominent faculty of spirit, and is the condition of all psychical life, save that of sense only. Emotion is a psychical excitement produced by the perception or thought of some object, and has a correspondence to the nature of the object. Motivity is a more active principle than emotion, and is always a tendency towards some end. Exertion, or action, is an ability in the exercise of which the soul voluntarily uses the mental and physical powers at her command. And the capability of pleasure and pain is manifested in that peculiar experience, or element of experience, which, under laws of its own, accompanies all the different forms of psychical activity.

Diversity of powers does not involve separateness of parts.

But here, in order to avoid misconception, let us remark that neither the foregoing nor any other division of psychical powers conflicts with the doctrine of the unity of the soul, or involves the idea that a spirit is composed of parts. Our activities not only belong to the one *ego*, or self, but they mingle and blend in the formation of one complex life. They neither exist nor operate separately; it is only through philosophical analysis that they can be separately thought of. As a glassful of water may have weight, fluidity, incompressibility, transparency, temperature, and other qualities, without being thereby divided into parts, so the possession of diverse powers is consistent with the fact that the soul is a yet more perfect unit than any material body is, or can be.

Three divisions: 1. The primary and the secondary powers of intellect.

3. Having divided the powers of the soul in general, we turn to the division of the intellect. The ends of our study now require that we should make, not merely one, but three classifications.

First, we divide our mental powers into the primary and the secondary. This division refers to the natural order of the operation of these powers. We say that *thought and belief are the primary powers,* because in their exercise intellect accomplishes its ultimate work, that which alone gives importance to all the rest. And we call *attention, acquisition,* *association, synthesis, analysis, abstraction, and generalization, secondary powers*, because their working is simply to modify the operation of the primary powers, and has all its consequence from this fact. Thought and belief, no less than thought, are concerned with things, objects; whereas the other powers are essentially subjective in their operations, and cause certain modifications in our ideas and beliefs.

The distinction between conception and conviction, between thought and belief, is clearly marked in the speech and consciousness of men, and is of the utmost importance in philosophy.

2. The three phases of intellect.

A second division of intellect has reference to the mode of the formation of mental states; and it sets forth several complex phases of intellectual life, and the capabilities, or faculties, of which these phases are the manifestation. This division does not arise from so searching an analysis as that just mentioned. It recognizes the fact that certain manifestations of thought and of belief result from certain general causes; and it leads to the study of the forms of intellectual activity thus produced. These phases are three in number, and may be styled *the perceptive, or presentational; the reproductive, or re-presentational; and the discursive, or rational, phases of intellect.* Both thought and belief are exercised under each of these modes of intellect; as are also, though in different degrees, the various secondary powers of mind.

The *perceptive* phase of mental life originates in, and is characterized by, the *immediate cognition* of objects. It is subdivided into *sense-perception, consciousness, and concomitant perception;* this last signifying that cognition of relations and the fundamenta of relations, which, without being included in sense-perception and consciousness, is exercised in connection with them.

The *reproductive* phase arises from the *repetition* or *reproduction*, by the mind, of the ideas and beliefs of immediate cognition. Its principal forms are *the memory, the fantasy, and the imagination.* The law according to which our thoughts are reproduced, in whole or in part, is called the law of the association of ideas.

The essential and distinguishing mark of the *rational* phase of intellect is the exercise of *a peculiar degree of penetration and of comprehension.* This results from a higher degree of mental power than is possessed by irrational creatures, and is manifested, first, in the precise and thorough cognition and understanding of things, especially of relations and consequences, and, secondly, in connected logical thinking, or, as it has been named, the "discourse of mind." This second mode of reason differs from the first only in being more deliberate and consecutive: *it produces* *the notion, the judgment, and the inference, which, as forms of rational thought, are discussed in logic;* for it is only as developed modes of mental action that notions, judgments, and inferences specially belong to the rational phase, or faculty.

3. The intuitional and experiential elements of conviction and of conception.

A third radical distinction in intellect finds its *fundamentum divisionis*, or principle of division, in the character of our convictions. It is commonly indicated by the twofold division of the elements of our belief—and also of the elements of our thought—into the intuitional and the experiential.

So far as a piece of knowledge or information is merely historical or matter of fact, it may be called experiential, because it sets forth something that can be originally known only through experience, or the direct cognition of the actual. For example, it is an experiential conviction that there is such a city as New York, and that it contains one million of English-speaking inhabitants. But a conviction which sets forth a thing as necessary or as possible asserts something different from the mere matter of fact. We now say that something must be, or may be, because something else is known to be; and so we introduce the necessary relations of existence, and what are called our necessary beliefs. Thus it is necessary that New York, being a large city, should not only be located somewhere, but should also occupy a considerable territory; and it is conceivable or possible that its inhabitants, being all human beings, should learn to speak some other language than English. Again, it is an experiential judgment that I am now writing with a pen, but it is a necessary judgment that I must use some instrument in order to write, or that I might use a pencil instead of a pen; for, from the nature of the case, one of these things is necessary and the other possible.

Possibility perceived intuitionally.

Judgments of possibility may, of course, be distinguished from those of necessity, but for our present purpose we must regard both as "necessary" judgments; and this, too, in a peculiar sense. In one sense all beliefs are necessary; they are the inevitable result of the exercise of certain faculties. Now, however, we speak of those convictions which are not mere perceptions of fact, but which, being based on a consideration of the necessary relations of things, assert this or that to be necessarily true. In this sense a postulate, which asserts a thing to be possible, is a necessary judgment no less than an axiom, which asserts a thing to be necessary. Though philosophers differ as to the ultimate origin and ground of these necessary convictions, it is quite evident that we constantly form and use them.

That school which teaches that our first cognitions of the necessity and of the possibility of the existence of things are direct and reliable perceptions, are called Intuitionalists, because they believe in a direct intuition of necessary truth. We prefer their doctrine especially to that of the Associationalists, who do not make a sufficient difference between the assertion of a necessary consequence and a mere historical statement.

As we have direct cognition of matters of fact, as well as of things necessary, there may be a question as to the propriety of confining the term "intuition" to the immediate perception of necessary truth. But language has been employed in this way; so that now an intuitional, especially as contrasted with an experiential, perception signifies the immediate cognition of some truth or fact as necessary.

The distinction between intuitional and experiential judgments or cognitions is not a difficult one. Even when we recognize something *both to be fact and to be necessary fact*, we can easily separate the two elements of conviction. Letting a bullet fall to the floor, we perceive both the *fact* of the fall, and that it falls *necessarily*, by reason of some cause. In like manner we can see, *simply as facts*, that two bullets are equal in weight to each other, and that each of them is equal in weight to a third bullet; and we can also see that the two bullets, being each equal to a third bullet in weight, *must* be equal in weight to each other.

The onto-logical and the empirical elements of conception.

There is, however, another distinction, closely related to the foregoing, which cannot be understood without careful consideration. *It does not pertain to our convictions directly, but to our ideas or conceptions as these are employed in our convictions.* When we examine any historical or merely matter-of-fact statement, we find that our belief in the truth of it is not specially connected with any one part of its thought more than another, but, on the contrary, is related alike to the whole thought. Such is the case when we simply perceive the weight and fall of the bullet, or when we see that three groups of three bullets each are, simply as a matter of fact, equal in number to a single group of nine bullets. When, however, we examine any specific statement that is necessarily true, — that is, which sets forth something as existing necessarily or possibly, — we discover that *its peculiar force does not arise in connection with the whole of our thought, but only in connection with a certain portion of it.* When we say that the unsupported bullet *must* fall because of its weight, the force of this statement does not depend on the special nature of the bullet and its weight, but on the fact that the leaden ball is a *substance* endowed with a certain *power*, or tendency, and on the general principle that *any substance endowed with any tendency necessarily exerts that tendency under conditions which may be ascertained.* In other words, we see that power, under proper conditions, must operate. And, seeing the bullet fall a second time, we not only perceive that a similar event *has* occurred, but we say that it *must* have occurred, on the general principle that *substances exert their potencies in the same way under a repetition of the same conditions.* In short, analysis shows that these judgments concerning the necessary fall of bullets do not depend for their peculiar force on the whole nature of the objects considered, but only on the character of the objects as substances endowed with tendencies to certain fixed modes of operation. So, also, when we say that three given groups of bullets of three each are necessarily equal to a single group of nine, this does not depend on the fact that they are leaden balls, but only on the fact that they are *individual things;* for any three groups of three things each would be collectively equal to a group of nine. Such being the case, it is possible to discard from specific statements of necessity those elements of thought on which their necessity does not depend; accordingly, in this way, the axioms and postulates of algebra and geometry and the other sciences have been formulated.

Now, when *the conceptions employed in these general modes of necessary conviction* are examined, they are found to be comparatively few and simple. They are such thoughts as those of existence and non-existence, of necessity and possibility, of space, time, quantity, and relations, of substance, power, action, and alteration. It is observed, too, that although these abstract ideas are themselves distinct notions, yet, with reference to our ordinary thinkings, they may be styled *elements of thought*, because they enter into the composition of all our ordinary conceptions. And the remaining portions of our ideas may still more appropriately be named elements, because we never naturally employ them in abstract and separate thought, but use them in their combination with those few fundamental conceptions which relate immediately to the general nature and laws of being.

Those parts of our thinking on which our necessitudinal, or intuitional, convictions depend might be styled, collectively, *the intuitional element of thought;* while the remaining parts, taken together, might be called *the experiential element.*

But we should note that *this distinction is not coincident with that between intuitional and experiential beliefs or convic-*

tions; for an intuitional conviction, though it does not depend on experiential thought, can make use of it, as in the case of the necessary fall of the bullet; and experiential convictions, likewise, use those elements of conception on which the force of intuitions depends, as well as those whose employment in assertions depends peculiarly on experience. This may be seen in illustrations similar to those which have been given.

CHAPTER IV.

SENSE AND ITS RELATIONS.

The word "sense." 1. THE word "sense," being derived from the Latin *sentio*, originally signified either feeling or the perception that accompanies feeling. The latter meaning appears in such expressions as a sense of danger or of impropriety, and when we speak of a sensible man, or of a man of good sense. In modern psychology, however, this term, when used alone, has generally been confined in its application to *our bodily feelings*, as distinguished from the perceptions formed in connection with them. Moreover, as the word "sensation" indicates the exercise of these feelings, the name "sense" may very properly be restricted to our power of having them.

Sense a psychical power, and *sui generis*. When sensations are styled bodily feelings, the expression refers to their source rather than to their nature; for the power of sense belongs to the soul, and not to the body. As the soul uses the organs of locomotion, but is different from them, so it is affected by the organs of sense, and is different from them. Sensation, it is true, belongs to the soul only as embodied; it is conditioned upon certain corporeal or nervous changes, but it is to be distinguished from these changes. In itself, it is purely psychical.

This power is not to be confounded with any other power of the exercise of which our spirits are conscious. Especially we should observe that sense is not intellect. Sensation and thought are things radically unlike. Who cannot distinguish the pain of a cut finger or a burnt hand from the thought of these things, or the satisfaction of a refreshing draught or a comfortable meal from the mere conception of these objects as matters of unrealized desire? Therefore, separating sensation on the one hand from corporeal affections, we separate it on the other from all the higher activities of spirit.

The relations of sense to intellect: 1. The excitant. 2. Although sense is radically diverse from intellect, it has intimate relations with the latter power. In the first place, sensation, or the exercise of sense, is a natural excitant and occasion of the exercise of intellect. As the power of ignition and illumination which resides in the lucifer match is called into exercise by that rough rubbing which is followed by the flash of light, so the soul, on the occasion of the coarse experience of sense, awakens to the higher experience of thought. The opinion, too, seems well founded that our first intellectual activity is excited by the first sensations of the infant spirit. These views were well expressed by Patricius (an old writer, quoted by Hamilton), when he called the senses the "exordium," or starting-point, of knowledge. "Cognitio omnis," he says, "a mente primam *originem;* a sensibus *exordium* habet primum."

2. The object. But sensation is more than the excitant of thought; it is also, and at the same time, an important object of thought. For the mind, while perceiving its own sensations, is gifted besides with the power of perceiving certain relations and correlates of these sensations; and this is the origin of our knowledge of the external world. The intellect, acting upon and in conjunction with the experiences of sense, discerns the existence and the nature of material objects, and so from small beginnings ascends to the contemplation of the universe. The discussion of the relation of our knowledge of our own sensations to our knowledge of the material creation forms an important chapter in the philosophy of mind.

3. The instrument. Finally, the power of sense is employed by the intellect as an instrument of inquiry and of guidance. We increase our knowledge of material existences through the intelligent use of the senses; and we direct our bodily actions by the information obtained through them. The highest of the physical sciences, such as geology and astronomy, are dependent on sensation for the ascertainment of their facts; and the most exquisite of the arts, such as painting, music, and sculpture, seek guidance for their delicate movements from the same source. By sense also we are qualified for the ennobling faculty of speech.

Because of these several functions — as the excitant, as the object, and as the instrument of intellectual activity — the power of sensation has always occupied a prominent place in discussions concerning thought.

Sense defined. Sense is a simple power, — that is, it is distinguished from our other psychical endowments by an incomplex peculiarity; therefore also, like intellect, it does not admit of analytical definition. Yet every important conception in philosophy, however simple it may be and incapable of description, can and should be determined *circumstantially, or by means of its more prominent relations.* If a number of balls hung in air, each of which was precisely similar to the others in size and shape, but possessed of a shade of color peculiar and unlike any color to be found elsewhere, we could not describe these balls severally to one who had never seen them. But we might determine the bearings of each ball from various fixed points of observation, and in this way we could indicate the place of its existence, and make it the object of intelligent apprehension. So it is not sufficient to say that such or such an object, being simple, cannot be defined; we should endeavor to show its distinguishing relations. This mode of defining, or, more strictly speaking, of determining, a conception is equally satisfactory, and should be considered equally logical, with that which results from analysis. It sufficiently defines sense to say that it is a power the exercise of which is immediately consequent upon a corporeal affection, and which, though not thought, is related to thought, as has been already described.

Sense divided. Commonly we hear of five senses, — taste, smell, hearing, touch, and sight. Philosophical discrimination adds to these at least two others, — the organic and the muscular. The marked peculiarity of the five first-named is, that their bodily organs, being evidently constructed for their use, are easily perceived and distinguished.

Muscular feelings are those internally accompanying muscular movements. They are the least varied of all, but they admit of a delicate mental estimate of the quantity of sensation; and this enables us to measure the amount of muscular power employed or of physical force counteracted. The sensations experienced in one's opening his fingers or raising his hand, in lifting a weight or stopping a moving body, in resisting the flow of a stream of water or the violence of an excited animal, in exerting one's self in any physical labor, — in short, all sensations of corporeal effort and opposition, — belong to this class.

On the other hand, *our organic sensations*, which are those connected with our various bodily functions other than that of muscular movement, contain many specific classes. They, and indeed all our corporeal feelings, may be divided into the ordinary and the extraordinary, — that is, those experienced during bodily soundness and health and those felt during bodily injury or disease. Some of them are more localized than others.

Hunger, thirst, sleepiness, weariness, aches, pains, and the various feelings of sickness, together with the pleasant sensations experienced when we are relieved of any suffering or distress, are forms of organic sensation. To these we may add the feelings of heat and cold, and that of pressure, as when the hand lies on a table beneath a weight. As some of these experiences take place throughout the whole body, while no set of nerves is known to be specially devoted to their production, every part of the sensory system alike may be regarded as their organ; but this is pre-eminently true of those feelings of exhilaration and of depression resulting from bodily vigor or debility. The famous orator Charles James Fox, as he inhaled the morning air and looked abroad on the freshness of Nature, was wont to exclaim, "What a glorious thing it is to live!" And these words seem to have been chiefly prompted by a sense of that exuberant vitality and vigor which pervaded the bodily organization of that great man.

The "sensorium."

If the foregoing statements be correct, it is evident that the power of sense is diffused throughout the whole body. Some bodily growths, it is true, — as the hair, the nails, the outer cuticle, and part of the bones, — are void of sensation. But these are a small fraction of our physical person, and, through sensations of the adjacent and surrounding portions, they are brought practically within the sphere of sense. Every other part of the body is so minutely pervaded with muscular and organic sensations that the power of sense may be said to occupy our whole frame.

The body, thus considered as the place throughout whose limits the soul is sentient, is called the "sensorium." This term, formed after the analogy of "dormitorium," "oratorium," and such words, which mean the places of sleeping, of prayer, and of other uses, signifies the place, or local organ, of sensation. More correctly speaking, that system of sensitive nerves, centring in the brain and minutely pervading the body, should be styled the sensorium; for we have no feeling save so far as some nerve may be touched or excited, and the destruction or paralysis of a nerve destroys also the possibility of the sensation connected with it.

The immediate cause of sensation.

3. This brings us to consider the cause or immediate condition of the exercise of the power of sense. Long before the discoveries of anatomy, men knew that sensations resulted from affections of the body. The soul by an immediate perception attributes sensation to itself; but it perceives also that every sensation is occasioned by something not itself. When one's finger is burned, or even when one

suffers toothache, he needs no proof that he himself feels the pain, and he also is able to understand that the scorching fire or the decaying tooth is the cause of his experience; for in all such cases we find no occasion for the sensation in the preceding experience of the soul, yet we know that it must have some cause. Looking for this elsewhere, and discerning the peculiar affections of each bodily part, we soon find in these the invariable and necessary antecedents, and therefore also regard them as the occasions or causes of our sensations.

We are assisted, moreover, to this conclusion by a peculiar power of judgment whereby the mind discerns the place of its sensations as existing with reference to each other in different parts of the sensorium. We naturally look for the cause where we may have found the effect. Hence we unhesitatingly place the experience, and the occasion, of the sensation of sight in the eye, those of the sensation of smell in the nostrils, those of hearing in the ear, and those of touch in the hands and in other parts of the surface of the body. We also confidently locate a headache or toothache or other internal pain, and ascribe it to some local corporeal affection.

The nature of nervous action unknown.

Anatomical researches have thrown much light on this subject. They show that *a certain class of nerves are the seat of those bodily affections which produce sensation.* Moreover, inasmuch as all physical changes appear to involve motion, the opinion seems reasonable that motion of some kind is produced in the nerves by the action of their appropriate excitants; and that this motion, in some way, is the occasion of sensation. But nothing has ever been determined as to the nature of this motion, nor, indeed, as to any element of that physical change which must precede the psychical experience. Those theories which speak of the movements of a subtile fluid, of the vibration of fibres or filaments, and of the action of molecules, must be regarded as merely scientific conjectures. The general and important fact, however, is beyond question that the cause of sensation is in the nerves.

The saying of Democritus.

It is also clear that some physical body or agent must directly or indirectly affect our nerves before sensation can take place. The senses of sight and hearing present no exception to this statement, although their less immediate but more noticeable objects may be at a distance. The vibrations of light affect the optic nerve, and those of a sonoriferous medium the auricular, before we hear or see. This truth, centuries ago and in the infancy of philosophy, was emphasized by Democritus; at a time, too, when his statement must have appeared paradoxical. "*All the senses*," said he, "*are but modifications of touch*," — a statement which cannot be accepted literally, yet is true in this modified sense, that some physical agent must affect some nerve before any sensation can be experienced. If there be any exception to the law thus announced, it is an exception which confirms the rule.

Speculative difficulties. The doctrine that sensation is the result of nervous action may seem too simple and evident to have ever been the occasion of difficulty. Yet perhaps no questions have more perplexed philosophers than those relating to the causal connection between body and soul. "*Has matter any power to affect mind?*" "*Has mind any power to affect matter?*" are inquiries over which able thinkers have been sorely tried. The principal obstacles which have prevented many from a perception of the truth have been two speculative convictions which have prevailed extensively.

The first difficulty. First, it has been held that material objects can come into contact only with material objects. In the words of the ancient poet,

> "Tangere enim et tangi, nisi corpus, nulla potest res."

We accept this utterance as probably true in the sense that matter cannot affect mind in the same way as it affects other matter. In this sense a spirit is intangible. The properties of mind, so far as we know them, are so different from those of body, so far as we know them, that it would be unreasonable to suppose that the latter could affect the former just as it would a substance of its own nature. If either can operate on the other, we must expect the result to be quite different from any affection properly incident to the nature of the operating agent; for when two objects are diverse in character, they are incapable, to the extent of that diversity, of being acted upon in the same way.

Therefore we hold that *matter cannot come into collision with spirit as it can with other matter.* We would as soon expect a collision between the atmosphere which surrounds our globe and the light of day which pervades the atmosphere. Spirit cannot be touched as we touch material objects with our hands. At the same time it seems evident that mind can be placed to a considerable extent under the operation of a material body. The soul during the present life dwells within the body; wherever the latter may be conveyed or confined, there the former is carried and imprisoned likewise. If the body can thus enclose the spirit, and bear it wherever it may itself be borne, may it not also in other ways affect its inhabitant? Indeed, has not the common sense of men good reason to affirm that it does?

The second difficulty.

The second conviction from which speculative difficulties have resulted, refers, not to the general nature of spirit, but to a specific characteristic. *It is held that the soul is unextended*, and we are asked, "How can matter, the extended substance, have any causal connection with mind, a substance devoid of extension?" The argument runs thus: "Nothing can touch and be touched but what is extended: and if the soul be unextended, it can have no connection by touch with the body: the physical influence, therefore, is inconceivable and impossible." This reasoning, in which, however, the word "touch" signifies merely juxtaposition in space, implies the truth of two statements: first, that an unextended substance cannot affect, or be affected by, an extended substance; and secondly, that the soul is an unextended substance.

The first of these statements, we think, may be accepted as correct, if by an unextended substance we mean one which does not in any way pervade or occupy space; for a substance which absolutely does not occupy or pervade any portion of space is inconceivable. We may conceive of a substance pervading space in such a way as not to interfere with the occupancy of the same space by other substances of a coarser nature; but no substance could exist without any room at all. Not even the most insignificant soul could exist within a mathematical point. If, therefore, by an unextended substance we are to understand one which has no relations to space save those of position only, then we not merely admit that such an object could not be affected by material changes, but we deny that either the soul or anything else is a substance of this character. In short, we reject the view of Descartes and many other learned men, that spirits do not in any sense occupy space, and incline to the belief that the soul, in some subtile way, pervades and possesses the sensory system.

The soul a simple substance which pervades the sensorium. Aristotle. Early Christians.

4. We have no reason to suppose that the soul has shape and parts like the body, or even that it is a composite substance. The probable opinion is, that it is a simple substance endowed throughout with various powers, and that, if not always present, it is capable of becoming instantly present, either successively or simultaneously, at different points of the sensorium, as these may be acted on by material agents. The soul certainly seems to exercise, in that part of the body which may be affected, that mode of sensation which corresponds to the peculiar action of the nerves of that part.

But, possibly, in times of quiescence or of sleep, the spiritual substance may retire wholly to the brain.

The doctrine of the pervading presence of the soul was taught by Aristotle, who held that *the soul is all* (that is, with all its powers), *in every part of the body*. This was also the view commonly entertained in the early days of Christianity. The epistle to Diognetus — an eloquent letter, probably written by Justin Martyr, but certainly addressed by some eminent Christian in the first or second century to an equally eminent pagan — contains the following passage: "That," says the author, "which the soul is in the body, the same are Christians in the world; for the soul is diffused through all the members of the body, and Christians through all the states of the world. The soul dwells, indeed, in the body, but is not of the body; and Christians dwell in the world, but are not of the world."

Descartes' doctrine: the soul unextended.

The prevalence, in modern times, of the opinion that the soul does not occupy space, may be traced to the writings of René Descartes, who, in the second quarter of the seventeenth century, revolted against the traditional dogmas of the Middle Ages, and formed for himself a new philosophy. One of his favorite doctrines was that the essence of matter is extension, and that the essence of the mind is thought, — that matter is the extended unthinking substance, and that mind is the thinking unextended substance. This doctrine was incorporated into the philosophy of Europe, and has been maintained as the proper opposite of materialism. The influence of it is apparent in the earlier teachings of the Scotch school. For example, Dr. Thomas Reid, one hundred years after Descartes, ridicules the idea that one's mind can be present in his toe, so as to feel pain there. "Philosophers," he says, "have disputed much about the place of the mind, yet none of them ever placed it in the toe."

Though Descartes maintained that the soul can exist without being extended, he allowed that it must have a place or location. He supposed that it resides in the pineal gland, a small gland in the centre of the brain. His followers, also, endeavored to account for a fact which he himself did not admit, namely, that *the soul and body directly influence each other*. "The soul," said they, "may be compared to a spider seated in the centre of its web. The moment the least agitation is caused at the extremity of this web, the insect is advertised, and put upon the watch. In like manner the mind, situated in the brain, has a point on which all the nervous filaments converge; it is informed of what passes at the different parts of the body, and forthwith it takes its measures accordingly. The body thus acts with a real efficiency on the mind, and the mind acts with a real efficiency on the body."

The tendency, of late years, has been to return to the ancient belief in the spaciality of spirit. Sir William Hamilton, though confessing himself in perplexity, annotates on Reid as follows: "Both in ancient and modern times the opinion has been held that mind has as much a local presence in the toe as in the head. The doctrine long generally maintained was that, in relation to the body, *the soul is all in the whole, and all in every part*. . . . The first condition of the possibility of an immediate, intuitive, or real, perception of external things, which our consciousness assures us that we possess, is the immediate connection of the cognitive principle with every part of the corporeal organism. . . . That the pain is where it is felt, is the doctrine of common sense. We only feel inasmuch as we have a body and a soul; we only feel pain in the toe inasmuch as we have such a member, and inasmuch as the mind, or sentient principle, pervades it. We just as much feel in the toe as we think in the head." President Porter, also, expresses himself in similar terms.

The teaching of Hamilton and Porter.

The view of Hamilton and Porter involves that not merely the feeling, but also the initial or primary perception of it, takes place where the bodily affection occurs. At the same time this cognition, though as local as the sensation, is, of itself, extremely indefinite. It is perhaps the lowest possible form of intellectual action. The completed and measured estimate of the distances and direction of sensations from one another, and the exact determination of the places of feelings with reference to the parts of the body, *are judgments which follow upon the comparison and construing together of the primary perceptions of the sensations;* and the formation of these definite judgments requires some time and experience.

Moreover, the mind, while the body is yet whole, having used these secondary judgments and found them trustworthy, adopts them as rules of belief in regard to all sensations which may take place in the same general region or direction; and the habit of conclusion thus formed is not easily laid aside. This may explain the fact that after the amputation of a limb, it is often difficult for one to realize that he has lost a hand or a foot. With some individuals the tendency to erroneous judgment does not remain long; with others it lasts for years.

CHAPTER V.

THE EFFICIENCY PRODUCING SENSATION.

1. SIR WILLIAM HAMILTON, in the sixteenth lecture of his metaphysical course, shows what difficulties have arisen in philosophy concerning the causal connection between soul and body, and confesses that he himself, having failed of a satisfactory solution, had resolved to rest in a "contented ignorance." Before further discussion in regard to this connection, it may be instructive to consider briefly the strange hypotheses which those were driven to adopt who, for various reasons, believed that neither agent can directly act upon the other. Beside *the ancient Aristotelian doctrine of direct influence*, which we regard as the correct view, three hypotheses have been devised.

The plastic medium. The first of these, in point of time, was the hypothesis of the plastic medium. It is to be traced to Plato, who teaches "that the soul employs the body as its instrument; but that the energy, or life and sense, of the body is the manifestation of a different substance, — of a substance which holds a kind of intermediate existence between mind and matter." The Alexandrian Platonists specially elaborated this idea; and "in their psychology, the ὄχος, or vehicle of the soul, the medium through which it is united to the body, is a prominent and distinctive principle." Saint Augustine inclined to this view; and it has been adopted by some eminent modern philosophers.

Occasional causes. The second hypothesis is that of occasional causes. By an occasional cause is meant a cause which is only the occasion of some effect, and which does not contribute at all to the efficiency producing the effect. This theory is also named the hypothesis of divine assistance, because God is regarded as the real causal agent between mind and body. According to this view, "the brain does not act immediately and really upon the soul; the soul has no direct cognizance of any modification of the brain. This is impossible. God himself, by a law which he has established, when movements are determined in the brain, produces analogous modifications in the conscious mind. In like manner, in case the mind has a volition to move the arm, this volition of itself would be inefficacious; but God, in virtue of the same law, causes the answering motion in the limb. The body, therefore, is not the real cause of the mental modifications, nor the mind the real cause of the bodily movements." This doctrine was first advocated by Malebranche and other followers of Descartes; Dr. Reid inclined to it, and it was maintained by Professor Stewart.

Pre-established harmony. The third hypothesis, which is the most curious of all, is that of predetermined harmony. It was originated by Leibnitz. According to it, soul and body have no communication, no mutual influence. "The soul passes from one state to another by virtue of its own nature. The body executes the series of its movements without any participation or interference of the soul in these. The soul and body are like two clocks, accurately regulated, which point to the same hour and minute, although the spring which moves the one is not that which moves the other. This harmony was established before the creation of man, and hence is called the pre-established or predetermined harmony."

We object to all these theories, that they are mere *hypotheses devised to meet a difficulty which originates in mistaken views*, and that they are devoid of support save such as can be found from their fitness for that end. We can find no evidence of any medium of communication between soul and body, or of any divine interference to produce sensations and carry out volitions, or of that marvellous foreordained correspondence between corporeal changes and the life of the soul. On the contrary, both our natural convictions and our critical observations indicate that we actually are influenced by affections of the body. The mind refers its sensations to antecedents immediately present, yet outside of itself; our very conceptions of the sensible qualities and changes of matter are essentially conceptions of the causes of various forms of sensation as related to these effects, and we intuitively ascribe efficiency to these causes. Our sensations, therefore, are perceived as really resulting from the body and things affecting the body. When we handle a stone, its weight, hardness, roughness, and coldness are real causes producing effects corresponding to them in us. All this we firmly believe till confused by some philosophical subtilty. Let us remember that difficulties on this subject have resulted simply from an undue contrasting of mind and matter, of soul and body, as things different in nature, and we shall have no trouble in accepting the teachings of intuition. These two substances differ, perhaps, as far as substances can differ, but not so far as to be incapable of mutual influence. This whole subject brings before us one of those frequently recurring cases in which the best philosophy is found to accord with the ordinary convictions of mankind.

Three possible theories. 2. Accepting the view that sensations are occasioned by corporeal affections, we have yet to choose between several theories respecting the efficiency producing sensation.

First, it has been taught that the power producing sensation is exercised wholly by the body, and that the *soul is wholly passive.* When lightning tears open the roof of some building, or the electric spark pierces the paper subjected to its passage, the roof or the paper does not actively contribute to the result. A stone flung into the air does not originate any of the force by which it is propelled; it is entirely recipient and devoid of exertion. So the soul might be considered wholly passive in sensation; it might be likened to a placid lifeless pool whose rippling motions are made by the breezes only.

Again, it has been contended that the efficiency producing sensation resides *wholly in the soul*, and does not rise at all from the affections of our sensory system. When a child becomes interested in some pretty toy and seeks it, the toy cannot be supposed to be the *efficient* cause of the excitement of the child's desires. These, indeed, without the view of the toy, could not have arisen; but the whole power in the case belongs to the infantile soul itself. As, therefore, the intellect and the motivities of man act with an efficiency independent of their objects, so, it is argued, the power of sense acts without any external stimulus, and simply on the *occasion* of changes in the nerves.

Finally, it may be conjectured that the efficiency producing sensation belongs *partly to the body* and *partly to the mind.* When a blow discharges a percussion cap, the effect depends on the detonating powder quite as much as on the force of the blow. So, when a vessel of water at a low temperature and perfectly still, is shaken a little, it immediately turns to ice; and when certain solutions are mingled, they effervesce and form new compounds. In these cases the shaking and the mingling do not produce the effect so much as other causes which these bring into play. The question, therefore, suggests itself, whether our sensations, even though efficiently caused by bodily affections, are not also due partly to the active power of the soul.

The efficient cause of sensation is twofold. Of these theories we prefer the last. We incline to the opinion that the efficient cause of sensation does not belong exclusively either to the body or to the mind, but is a combination, *partly physical*, *partly spiritual.* The motion of the bow of the violin produces that of the string, yet only in part; the tightness and elasticity of the string contribute. So nervous changes affect the mind;

while yet this affection is not purely passive, but results also in part from a power of action belonging to the soul itself.

Partly external and physical. That sensation is truly caused by physical changes is implied in those *natural judgments* which men continually make. We say that the wind makes us cold, that the fire warms us, that sound affects our ears, scent our nostrils, light our eyes, and so forth. Thus we refer these feelings to various physical causes, which act upon our bodily frame, and upon our souls as inhabiting the body. We also make an important distinction between *what is merely an object of cognition and what is a cause of sensation.* In cognition, the activity and its causation are regarded as wholly mental; in sensation, the prominent efficiency presented in perceptive thought is physical. These natural judgments accord with critical inquiry. A scrutiny of the conditions of sensation easily produces instances in which *no other antecedent* can be found than some affection of the nervous system. Moreover, the researches of anatomy and surgery show, to a demonstration, on what branches and filaments of the sensory system our bodily feelings severally depend. In short, no fact of physical science is more certain than this, which belongs to mental science also, that sensation results from an excitement of the nerves.

At the same time some considerations support the belief that *the soul is not wholly passive in sensation*, but that it exercises an efficiency of its own.

Partly internal and psychical: 1. Because of the analogy of our other powers. This is suggested by the analogy of our other psychical operations. In thought, sensibility, desire, and action, man is conscious of self-activity. He perceives that each of these modes of experience has no causal antecedents other than psychical, and can be ascribed to no efficiency other than that belonging to the soul itself. He therefore regards them as coming from a spring within. External objects may interrupt and modify the current of mental life, but they are not necessary to its continuance. The soul, once aroused to movement, lives on with an activity perpetual and inherent.

Moreover, although, during man's earthly existence, his psychical experience has been made dependent on bodily conditions, there is no evidence that it originates from them. On the contrary, easily distinguishing the spiritual activities, of which he is conscious, from all physical phenomena, man intuitively recognizes these activities and their powers as belonging not to his body, but to a substance other than his body, — that is, to his true self, or spirit; and so, as we have said, he regards the soul as self-active, because the greater and essential part of its experience, however dependent upon corporeal conditions, is perceived to originate, not from them, but from the soul itself. If every other psychical experience may be thus traced to the working of some inward power, may not sensation, likewise, be considered as resulting, in part at least, from the soul's own activity?

2. Because of the peculiarity of the effect.

To this conclusion we are led, also, by the following consideration. When one substance acts on another which is perfectly passive, the effect is of the same general character with the action by which it is caused. One stone, for example, striking another, transmits its own motion and nothing more. But *when the effect is of a new and peculiar character, we find the cause partly also in the substance affected.* The cause of the explosion of the percussion cap is found more in the detonating powder than in the blow; and the new compound from mixed fluids results more from chemical affinities than from the commingling. Now the nature of sensation, like that of our other psychical experiences, is revealed to us through consciousness, without which power we could not have the remotest conception of spiritual things; and we know that sensation is something extremely dissimilar to physical changes of any kind, so much so that we can scarcely compare it with them in any way. What likeness does any material process bear to the pain of toothache or of rheumatism, and what chemical or mechanical operation can be compared to the satisfaction of hunger or the gratification of taste? Sometimes we describe a sensation by mentioning the physical action by which it may be produced, — as, for example, the sensation of being struck or cut or burned, — but we distinguish the outward action and the inward experience as being very different. Some generic likeness, perhaps, can be found in sensations to other and higher feelings with which pain and pleasure are also specially connected, such as joy, sorrow, hope, fear, love, hatred; but we can discover no resemblance in them to any physical phenomena. Such being the case, it is reasonable to believe that sense is not merely a capacity, but a capability; and that the mind, the substance in which sense inheres, itself contributes to the efficiency producing sensation.

3. Because of certain reactions of mind on body.

Finally, the activity of the soul in sensation is suggested by certain reactions of mental upon physical life, which result in bodily feelings more or less defined. In certain exceptional cases, which can be easily distinguished, sensations seem to originate from psychical efficiency, no external excitant being present; for example, purely intellectual feelings — that is, those emotions which result from thought and which are not the consequence of bodily changes — are sometimes accompanied with sensations. Surprise causes a startling sensation; disappointment, a sinking feeling in the breast; fear produces chilliness. In short, corporeal feelings generally attend any violent mental disturbance. Here it may be objected that, in such cases, sensation is not directly produced by psychical efficiency, but only indirectly and through an affection of the nerves. Possibly this may be so; such instances certainly evince that the soul can act on the sensorium as well as the sensorium on the soul.

It may, however, be more to our present purpose to remark that *imaginative ideas in dreaming, and even in wakeful hours, sometimes cause sensations*, as if some reality had taken place; and the sensations thus excited seem also to produce nervous changes, such as at other times produce them. The order of causation appears to be reversed. Instead of nervous change, sensation, thought, we have thought, sensation, nervous change. In dreams, especially, our sensations often appear to be more than mere imaginings; we experience, though in feeble measure, the pains and pleasures of real life. How often, too, we meet with those who assert that they have heard the voices or seen the faces of absent friends, themselves creating what they hear or see! Various experiments may illustrate this power of the mind to originate its own sensations. Should a sharp needle be directed towards the middle of one's forehead, and advanced steadily, a singular feeling is experienced, at least by nervous people, at the place where the point of the needle is expected. This must result from the mind's own activity. Moreover, the soul, when specially interested, appears to have the power of adding to the natural keenness of any sense. When we listen or gaze, or even touch, taste, or smell, attentively, new delicacy is given to the organ. It is said to be *innervated;* and this innervation is probably an increase of that efficiency which the soul exercises in sensation, and is similar to the increase which special interest and effort produce in the energy of any other spiritual power.

Herbert Spencer testifies to the fact that thought does sometimes produce bodily feelings, though he does not use it as we have done. He says: "Ideas do, in some cases, arouse sensations. Several instances occur in my own experience. I cannot think of seeing a slate rubbed with a dry sponge without there running through me the same cold thrill that actually seeing it produces." As this reactionary movement of the mind depends on the recollection of things already perceived by the senses, it is an indication that the primary and proper source of sensation is the action of the body on the mind.

CHAPTER VI.

CEREBRALISM, OR MATERIALISM.

Materialism defined. Cerebralism. 1. THE doctrine which makes spirit only a refined species of matter is called *materialism*. The essential point in materialism is that sensation, thought, and spiritual experience generally, result simply from the operation of physical agents as such, or as acting in obedience to their own proper laws. This idea has been expressed sometimes by comparing psychical operations to those phenomena of light, heat, and electricity which take place during chemical and vital processes. In other words, materialism teaches, not merely that spirit is extended and has other attributes in common with matter; not merely even that spirit has all the essential attributes of matter, although no one save a materialist would say this; but also, and especially, that the life of spirit is purely a development of material forces.

The modern adherents of this doctrine have frequently been styled *cerebralists*, because they derive psychical phenomena from certain supposed qualities of the brain and nerves. Auguste Comte, in his "Positive Philosophy," distrusts and contemns all facts save the physical and tangible, and finds in these an explanation of all phenomena. According to him, "the positive theory of the intellectual and affectional functions . . . is simply a prolongation of animal physiology, . . . from which it differs far less than this last differs from simple organic or vegetable physiology." Herbert Spencer and Alexander Bain are English psychologists, and Professors Tyndall and Huxley English scientific writers, who, with some modifications of thought and phraseology, have ideas essentially similar to those of Comte.

Let us note that *the question presented by materialism is not identical with the question whether the soul and the body are two distinct existences*. If this were the case, it would be easily settled. In every act of sense-perception the *ego*, or self, or soul, immediately distinguishes from itself the *non-ego*, or body, whose affections are the cause of our sensations. So also the *ego* immediately refers spiritual activities and powers to itself, and sense-affecting operations and powers to the *non-ego*. Thus soul and body are at once distinguished. But the statement of these facts, although they have an important bearing on the argument, is not the proper opposite of the materialistic theory. One might allow the distinct existence of soul and of body, and yet argue that the soul is a product of some corporeal function. Those who say that the brain produces mind just as the liver produces bile might say, that, as the bile is not the liver, so the mind is not the brain. The question therefore remains, Is not the soul an offspring of the body? For example, may it not be some subtile, active fluid secreted by the nervous system; and may not its experiences be the movements of this fluid?

Contrary to common sense.

We reject all such forms of belief for the following reasons. In the first place, though often advocated earnestly by philosophical speculators, materialism has always been condemned by the common sense — that is, the practical spontaneous reason — of mankind. Men in general do not inquire whether or how far mind and matter have a community of nature, or whether matter be the only extended substance or not, whether mind is capable of being enclosed in limits like the body, whether mobility and motion may be affirmed alike of both substances, and such questions; but they do hold that matter and spirit are radically, generically, different. So far as we can learn, no people, certainly no civilized people, have believed that the soul is simply a material product. As mankind are constantly and intimately concerned both with spiritual and with material objects, and with each as these objects really exist, their judgment as to a radical diversity of nature is not to be esteemed lightly.

Not proved by the dependence of psychical on physical states.

In the next place, the fact that psychical states, at least during man's present life, are immediately conditioned on physical, does not prove that the former originate from the latter, or that they are of the same general nature with physical phenomena. A good bed and a sufficient degree of warmth are the conditions of restful sleep; yet we do not, on that account, identify the bed and its warmth with the sleeper and his repose. So, after men perceive the intimate connection of soul and body, and the dependence of spiritual activity on the use of cerebral organs, the distinction is soon made between *the conscious agent*, on the one hand, and *the physical conditions of his activity*, on the other. They see that the agent may have an origin and an existence independent of the conditions to which his life is subjected; and they condemn the identification of the psychical with the physical as an undue and even as an unreasonable assumption; for when, in any case, some needful antecedent of a phenomenon seems unfit or inadequate for its production, we naturally say that it is only a condition and not the essential cause of the phenomenon in question. How easily, on this principle, we distinguish between any sensation and the affection of the sensorium on which it may depend,—for example, between toothache and the irritation of the dental nerve! In the same way we distinguish between the whole nervous system and the soul dwelling within it.

The belief in immateriality an inductive judgment.

This judgment of common sense, which affirms the unfitness of the physical to produce the psychical, seems really to be an inductive conclusion concerning the general character of material agents and their operations. Setting aside points of philosophical disputation, we may say that the conception of matter, as commonly and correctly entertained, includes those substances generally, or that part of substantial being, *whose nature and operations are made known to us in the exercise of sense-perception, and through inquiries essentially dependent on this power;* while spirit is that part of substantial being *whose character and phenomena are perceived in the exercise of consciousness, and by means of investigations dependent thereupon.* We believe, too, that any more complete and satisfactory definitions of these two substances must be worked out within the lines of thought indicated by these broad characterizations; which, however, are sufficient for our present purpose.

We should also add that while matter, not mind, is the immediate object of sense-cognitions, and while mind, not matter, is the immediate object of consciousness, experience enables us to use each of these powers of perception in the service of inquiries dependent primarily on the other. Thus the sight of an improved country, through an exercise of sense-perception, witnesses the industry and intelligence of the inhabitants; and in like manner a sense of exhilaration attested by consciousness may indicate a salubrious and invigorating atmosphere.

Now, if our knowledge and conception of matter and its qualities be formed as we have stated, the materialistic controversy may be made to assume a definite shape. If matter be defined as the substance whose existence and attributes are known in the cognitions of sense, then the question for determination is, *Can the production of spirit and its activities be accounted for by any powers of matter similar to those discovered by sense-perception and physical investigation?* The question, thus stated, leads to a negative answer; for physical investigation—the examination of material properties and powers—can discover no phenomenon in Nature similar to that production of psychical life which has been supposed to take place in the brain. We find in matter strict but blind obedience to the laws of its own constitution, and look in vain for any development of mental life. Moreover, acting on the rational presumption that such life, if it existed, would certainly manifest itself in some way, we take the absence of manifestation as a satisfactory proof of the non-existence of the psychical activity. If, then, no material combination is ever known to produce spiritual life or aught save physical changes, is it probable that the cerebrum, a body composed of common and well-known elements, should be thus endowed? The passage from the ordinary and physical operations of matter to this extraordinary and psychical activity is a step which the mind refuses to take. It would be easier to accept the doctrine of the alchemists that base metals may be converted into gold, than to believe that any kind of matter is capable of the production of spirit and its phenomena. So far as can be seen, matter acting upon matter leaves it matter still.

No psychical life in organized bodies as such.

Some, we know, assert that the operations of organic life in vegetable and animal structures indicate an intelligence resident in such structures or originating from them. To us organic growths exhibit only peculiar physical and molecular powers with which the Creator has endowed various material combinations of his own formation.

It is evident that the works of Nature in general could not have originated the intelligence manifested in their constitution. To suppose that they did, would be to make them the source of that source from which they themselves have evidently been derived. Who can credit the assertion that this great universe, so filled with order and goodness and beauty, was not produced by a pre-existing Intelligence? Who can believe that any one of God's wonderful works — for instance, the physical frame of man, with the complicated adaptations of its organs to each other and to the conditions surrounding our life — is the offspring of an accidental concourse of unintelligent atoms? No absurdity could be greater than this. Lord Bacon, on purely philosophical grounds, exclaimed, "I had rather believe all the fables in the Legend and the Talmud and the Alcoran, than that this universal frame is without a Mind;" and he justly adds, "A little philosophy inclineth man's mind to atheism; but depth of philosophy bringeth men's minds about to religion."

While it is thus clear that material organisms are the work of a pre-existing Mind, it is equally evident that they do not exhibit any power of psychical activity as resulting from the constitution given them by their Creator. Every operation of organic life can be explained as simply the unintelligent operation of physical forces. The genii of rivers and mountains, the souls of plants and trees, the angry spirits of the thunderbolt and the earthquake, are only ideas of the imagination. Moreover, the tendrils, roots, and leaves of plants never exhibit more than a superficial resemblance to the actions of a living agent. Their movements may be, and are, accounted for as simply the result of certain laws of molecular attraction and combination. The shrinkings of the sensitive shrub seem caused by a power which passes along its stems as heat passes along an iron rod. Insectivorous plants, of themselves, exhibit no more intelligence than a rat-trap. So far as can be discovered, all vegetable actions result from unthinking physical forces; there is an utter absence of that freedom, variety, and adaptability which characterize the efforts of voluntary agents.

The reflex action of the nervous system.

In this connection we may notice the use made by cerebralists of the discoveries of Sir Charles Bell and others, respecting the action of afferent and efferent nerves. It has been ascertained that frequently a physical influence being borne to the brain, or to some nerve-centre, by an afferent nerve, results, through the agency of the corresponding efferent nerve, in some bodily action. Sneezing and coughing are examples of such actions. They occur without any volition, sometimes without any consciousness, on our part; but evidently have always a useful end in view. The motion of the heart and of the muscles employed in breathing is maintained by a nervous influence, without any thought of ours; such, also, seems somewhat the case with various bodily actions which may have become habitual. In these movements, it is said, the work of mind is plainly performed by the nerves alone. But, in the phenomena alluded to, we cannot find any evidence that the powers of the soul are identical with those of the sensory system or even that they are of the same nature.

On the contrary, as the bodily movements in question are not necessarily accompanied with any consciousness, we infer that they result from forces which are wholly physical. So far from indicating a sameness between mental and molecular activity, they suggest that the sensory system is an organized kingdom of vital but unconscious material agencies, made ready for the control and guidance of the intelligent soul.

We should also add that *no evidence has been discovered of any fluid in the nervous system possessing physical properties, with which mind might be supposed to be identical.* Physiologists incline to the opinion that the excitement of the nerves consists simply in the action of molecule upon molecule.

Summation of the inductive argument.

To sum up what has been said, the chemical and mechanical, the vegetable and corporeal, powers of the creation all possess a common character. They exhibit blind obedience to the laws controlling masses and molecules, and nothing more. But the domain of spirit discloses a new nature. Instead of composition and divisibility, there is an absolute and conscious unity; so that (were conjectures allowable on a point so removed from observation) we might suppose mind not to be composed of molecules, but to have perfect continuity of being. Instead of a self-helplessness which acts only as acted upon, there is ceaseless self-activity; and, above all, instead of the powers of material objects variously to affect the senses and to act upon each other, there are such spiritual potencies as thought, sensibility, desire, affection, and moral principle and purpose. To hold that one of these natures with its powers can produce the other nature with its powers, is a worse than gratuitous assumption; it is the assignment of a phenomenon to an utterly inadequate cause.

A false analogy. Perceiving in all inorganic and organic substances an underlying sameness of nature, we are not surprised to see one department of the visible creation furnishing material and support for another. Mechanical powers operate everywhere; while chemical, vegetable, and corporeal changes contribute more or less to one another. But because of the radical diversity of character between the spiritual and the material, *the relation of the soul to the body cannot properly be compared to that of corporeal to vegetable structures, or to that of vegetable bodies to the inorganic.* It is wholly unlike these, and is so regarded in the general opinion of mankind.

Tyndall quoted. 2. It may seem strange that the leading cerebralists of our day admit the force of the foregoing reasonings. Let us take Professor Tyndall as a representative man. He publishes the conviction that "matter possesses the potency of every form and manifestation of life." He says: "Were not man's origin implicated, we should accept without a murmur the derivation of animal and vegetable life from what we call inorganic Nature. The conclusion of pure reason points this way, and no other." In this statement the expression "animal life" embraces not merely corporeal vitality, but also all forms of psychical activity. Yet this same professor, speaking of the theory of "a natural evolution" of the universe from inorganic elements, uses the following language: "What are the core and essence of this hypothesis? Strip it naked, and you stand face to face with the notion that not alone the more ignoble forms of animalcular or animal life, not alone the nobler forms of the horse and the lion, not alone the exquisite and wonderful mechanism of the human body, but that the human mind itself—emotion, intellect, will, and all their phenomena—were once latent in a fiery cloud. Surely the mere statement of such a notion is more than a refutation. I do not think that any holder of the evolution hypothesis would say that I overstate or overstrain it in any way. I merely strip it of all vagueness, and bring before you, unclothed and unvarnished, the notions by which it must stand or fall. Surely these notions represent an absurdity too monstrous to be entertained by any sane mind." In 1868, before the British Association for the Promotion of Science, Tyndall said: "Were our minds and senses so expanded, strengthened, and illuminated as to enable us to see and feel the very molecules of the brain; were we capable of following all their motions, all their groupings, all their electric discharges, if such there be; and were we intimately connected with the corresponding states of thought and feeling, — we should probably be as far as ever from the solution of the problem, How are these physical processes connected with the facts of consciousness? The chasm between the two classes of phenomena would still remain intellectually impassable. Let the consciousness of love, for example, be associated with a right-handed spiral motion of the molecules of the brain, and the consciousness of hate with a left-handed spiral motion: we should then know when we love that the motion is in one direction, and when we hate that the motion is in another direction; but the why would still remain unanswered." And in 1875 he reiterates the statement: "You cannot satisfy the human understanding in its demand for logical continuity between molecular processes and the phenomena of the human mind."

We are astonished at such utterances from one who finds every potency in matter, and we ask for an explana on of them. *This is to be found in a conception of matter pr sented by Professor Tyndall, which differs from that enter ained by men in general.* Matter *as matter* — that is, as ossessed of those qualities commonly ascribed to it — can t produce psychical life; but it is endowed with *other and hi her powers*, and in the exercise of these it may and does pro uce the phenomena of mind. To show the reasonableness of this idea, the Professor dilates eloquently on material "pote cies." "Think," he exclaims, "of the acorn, of the earth and of the solar light and heat! Was ever such necromancy eamt of as the production of that massive trunk, the swayin boughs, and whispering leaves, from the interaction of tho three factors? In this interaction consists what we call life. . . Consider for a moment this potency of matter. The is an experiment, first made by Wheatstone, where the mu of a piano is transferred from its sound-board through a thi wooden rod across several silent rooms in succession, and poured out at a distance from the instrument. The strings of the piano vibrate, not singly, but ten at a time. Every string subdivides, yielding not one note, but a dozen. All these vibrations and subvibrations are crowded together into a bit of deal not more than a quarter of a square inch in section. Yet no note is lost; each vibration asserts its rights, and all are at last shaken forth into the air by a second sound-board, against which the distant end of the rod presses. Thought ends in amazement as it seeks to realize the motions of that rod as the music flows through it. I turn to my tree, and observe its roots, its trunk, its branches, and its leaves. As the rod conveys the music and yields it up to the distant air, so does the trunk convey the matter and the motion — the shocks and pulses and other vital actions — which eventually emerge in the umbrageous foliage of the tree." In short, Professor Tyndall holds that evolution and materialistic notions are "absurd in relation to the ideas concerning matter which were drilled into us when young. Spirit and matter have ever been presented to us in the rudest contrast, — the one as all noble, the other as all vile." But if we should come to "regard them as equally worthy and equally wonderful, — to consider them, in fact, as *two opposite faces of the same great mystery*," — our difficulties would disappear. He confesses that his theory calls for a "total revolution of the notions now prevalent," yet derives encouragement from the fact that "in many profoundly thoughtful minds such a revolution has already occurred."

Remarks on the views of Tyndall.

In regard to these views of Professor Tyndall, we have the following remarks to make. First, in his acknowledging that matter, as commonly conceived of, cannot produce mind or psychical phenomena, he yields the essential point in controversy. If the production of spiritual phenomena result from powers different from those which matter is generally known to have, then these are produced by matter, not as matter, but as something of another nature. Matter, in fact, becomes itself the creative or formative spirit of the universe. This doctrine is not materialism; *it is a form of pantheism;* and the adoption of it is the surrender of materialism, properly so called.

In the next place, although Tyndall calls for a "total revolution" of our conceptions concerning matter, he fails to furnish any distinct basis for this change of view. As already said, his language sometimes suggests that there are powers in matter different from those which we call material; yet just as frequently he makes these other powers only the ordinary powers of matter exalted and refined. After all his eloquent illustrations of the wonderful potencies of matter, we find it hard to tell whether his views be really materialistic or pantheistic. The powers which he specifically describes are purely physical and unintelligent. The only "revolution" which his language effects is one which brings us back to our starting-point in a somewhat bewildered condition as to the meaning of the Professor.

Finally, we say that the pantheistic view, which makes matter to be a kind of unconscious yet thinking agent, is a doctrine wholly unsupported by evidence, and even more absurd than the extremest materialism. Mankind justly regard matter as devoid of the distinctive characteristics of mind; it never manifests these characteristics, and seems unfit to possess them. Nor could any opinion be more irrational than that the intelligence of creation and providence, which has solved problems of a complication and greatness far transcending the grasp of human faculties, is the attribute — the *underived* attribute — of an aggregate of material molecules; an aggregate, too, entirely unconscious of its own existence and its own activity.

We have now considered materialism with reference to those facts upon which its advocates rely. We find that these, strictly interpreted, do not support this form of belief, but indicate a radical diversity of nature between matter and spirit. The doctrine which we thus contrast with materialism has sometimes been called *dualism*, because it asserts a duality of nature in those beings immediately perceived by us. It is opposed to materialism on the one hand, and to idealism on the other, which doctrines, and also pantheism, to which they severally lead, have been classed together under the title of *monism;* for they all assert that we are cognizant of only one kind of substance.

God has no brain.

3. Before closing our argument, we must direct attention to the force of that great fact, which the positive philosophy vainly endeavors to ignore, and which, whether it be accepted or not, we think should be patent to every candid student of creation and providence. To us, assuredly, those works of wisdom, power, and goodness which alone ennoble the universe and make it glorious, manifest a Being inconceivably great and mighty, yet possessed of attributes essentially similar to those which characterize our own spirits. But where is the brain that gave birth to the omnipresent and all-creative mind? What material origin can be imagined for that cosmical Intelligence which first fashioned and still sustains the system of which we form a part? The fact has already been noticed that much nervous action takes place without any psychical activity. Is not the intelligent activity of the Creator a case in which the attributes of spirit are exercised without any connection with

cerebral or other material organs? And if this be so, may we not conclude that the existence and life of finite spirits are not necessarily dependent upon material causes, but that, with some wise design, they have been subjected for the present to earthly and corporeal conditions?

The spirits of brutes.

Here the question arises, May not a material origin and nature be assigned at least to the spirits of the brute creation? We think not. So far as brutes exhibit intelligence, affection, and other psychical activities, they belong to the domain of spirit, not to that of matter. Our planet seems to be a theatre in which two diverse worlds of God's creation, the spiritual and the material, mingle their laws and forces, acting also upon one another. The substances composing one of these systems are so diverse in attributes from those composing the other, that neither world can be considered a derivative or modification of the other; nor can we by analogy infer the laws governing existence and activity in the one, from those governing existence and activity in the other. In the material world we find no absolute beginning or termination, increase or diminution, of substantial existence. This is no proof that the reverse may not be the case in the invisible and intangible realm of spiritual being. We find no difficulty in believing that the power of creation and of annihilation, which does not — which perhaps cannot — reside in finite existences, may belong to the Originator of all things. So far as we can discover and judge, all earthly spirits begin to exist at the commencement of the activity of their bodily organization. But as the psychical endowments of brutes are sufficient and suitable only for the direction and the enjoyment of their corporeal life, one might expect their spiritual being to be extinguished at the end of their animal experience. Its proper purpose would then have been fulfilled. Man, on the contrary, has qualities which elevate him as far above the brute as the brute is elevated above every form of senseless matter. He is capable, even now, of entering into the plans and thoughts of the great Creator; and he has the capacity of endless development hereafter. For him the sages and philosophers of all ages have predicted immortality.

The connection of soul and body accounted for.

When we consider the godlike nature of the human soul, we sometimes wonder that it should be burdened with the limitations of corporeal life. All the various ends to be subserved by this arrangement may not be discoverable, but that the arrangement exists seems an altogether reasonable conviction. The soul, in the body, may be likened to a man incased in that strange armor which is used by divers. When one thus clothed is let down into the sea, his activity for the time is subjected to conditions very different from those which belong to the freedom of his home. His movements are restricted and determined by his harness. His sphere of effort is limited by the necessity of communication with his associates on the surface of the water. The signals by which his conduct and that of his friends are guided, come and go through a part of his apparatus. His covering, also, is the medium through which he receives impressions of surrounding objects, and the immediate instrument through which his work of exploration and salvage is accomplished. Moreover, so soon as the apparatus may need repair or readjustment, his submarine exertions are, of necessity, suspended. In short, while the armor greatly limits and changes his mode of life and labor, *it is also the condition under which the ends of that mode of life and employment must be pursued and may be accomplished.* In like manner it is reasonable to suppose that the same Wisdom which has evidently made so many benevolent arrangements for man's welfare has, for good reasons, subjected our spirits, in this life, to the conditions and influences of a corporeal connection.

Moreover, *the principles of moral philosophy enable us to perceive some purposes which certainly, or probably, led to the investiture of the soul with its fleshly habitation and instrument.* It is evident that many of those restraints by which man is withheld from vice, and of those incitements which prompt him to virtue, *originate in the circumstances of our present being.* Physical life is the necessary condition of civil government, of all arts and industries, of those temporal cares and employments by which the soul is wholesomely occupied, and of those modes of mutual helpfulness in which the morality and benevolence of mankind find obtrusive claims and frequent exercise. The birth of man into a state of weakness, and the manifest character of his subsequent dependence upon powers and agencies other than his own, prepare him to repose that faith in divine assistance without which spiritual prosperity is impossible for any created being. The limitation of the intercourse of spirits, resulting from their embodiment, is favorable to the growth of a proper moral independence; which purpose, also, as to the successive generations of men, is served by the brevity of human life. In short, our present state of being, in whatever light we look upon it, appears to be specially adapted and designed for our best moral development. The operation, for a time, of some such system as that under which we live, seems necessary for the highest good of the human spirit.

CHAPTER VII.

SENSATIONALISM AND ASSOCIATIONALISM.

Sensationalism and associationalism defined.

1. SENSATIONALISM is that form of belief which explains man's spiritual life as composed exclusively of those feelings which are excited by corporeal affections, and of modes of action resulting directly and wholly from these feelings. Associationalism teaches that the higher thinkings and actings of the soul result primarily from impressions and impulses of external origin, under the operation of that well-known law whereby mental states tend to recall one another after they have been experienced together. In other words, it asserts that not only some, but all of our secondary psychical movements may be explained as simply associational conjunctions and sequences. These two forms of doctrine are the chief reliance of the materialistic psychologist in his endeavor to account for the various manifestations of spiritual life, and naturally so; for, supposing the psychical identical with the physical, it is difficult to see what better can be done than first to define *sensation as the action of nerve cells*, then to make *all spiritual activities modes of sensation*, and finally to regard *every conjunction and sequence of inward states as the association of modified sensations*, — that is, of reproduced molecular changes — with one another.

Related to materialism.

These three forms of opinion — sensationalism, associationalism, and materialism — are allied, also, by reason of that mode of thinking in which they originate. It is essentially one-sided, exhibiting a keen but exclusive appreciation of one class or kind of phenomena and its laws, and an endeavor to explain all other related facts as having the same nature and laws as those observed. Materialism, disregarding that cumulative evidence by which mankind are convinced of the radical duality of substantial existence, confounds the life of intelligent and self-conscious spirit with those material changes with which, in human experience, it is immediately connected. In like manner sensationalism, neglecting those marked characteristics which prove our higher experiences to originate from peculiar and independent powers, makes them all, if not exactly material operations, yet mere modifications of impressions and impulses received from the outer world. And associationalism, fastening its eye on one easily observed law and on the successiveness of spiritual phenomena, reduces all other laws to this one, ignoring or slurring over the radical peculiarities of various important mental operations.

Representative men. Condillac, who wrote in France during the middle of the eighteenth century, while Reid was lecturing in Scotland, may be considered the founder of sensationalism. Representing man as a statue to which capacities of sensation had been imparted, he held that a statue thus qualified, and without any further endowment, would gradually manifest all the phenomena of mind. According to him, the modifications of the soul from present objects are sensations; and these, when reproduced and refined by the memory, are ideas. Hartley, an English contemporary of Reid and Condillac, may be considered the founder of associationalism. He, at least more formally than any of his predecessors, made association the one fundamental law of human thought and belief. James Mill and John Stuart Mill (father and son) did much, by their talented authorship, to recommend Hartley's views. According to them, our most deep-seated convictions and principles are merely associations of ideas rendered ,inseparable by habit.

At the present time Herbert Spencer, uniting in one system the essential views of Comte, Condillac, and Hartley, is the exponent at once of materialism, sensationalism, and associationalism. Spencer also is the apostle of evolution, — that is, of the theory of the spontaneous self-development of the universe, from a condition of formless and diffused "homogeneity" into a condition of orderly and harmonized "heterogeneity." This development, according to Spencer, results from a restless tendency of the ultimate atoms of matter to combine with each other, and from the "survival of the fittest" combinations (which for some reason are always the strongest), while the worse and weaker disappear. He holds his other views in subordination to this main idea. Although Spencer asserts that we can know nothing of the real nature of either mind or matter, he also maintains that, so far as we do know them, they are identical. His language throughout is that of the extremest materialism; and, as the "conclusion" of his philosophy, he declares "that it is one and the same ultimate reality which is manifested to us subjectively and objectively."

Spencer quoted. Some extracts from Spencer's "Psychology" may illustrate a style of theorizing which in some quarters is strangely popular. Life "is the continuous adjustment of internal relations to external relations;" and psychical life is thus "differentiated," or developed, from physical. "Along with complexity of organization, there goes an increase in the number, range, speciality, and complexity of the adjustment of inner relations to outer relations. And in tracing up the increase, we find ourselves *passing without break* from the phenomena of bodily to the phenomena of mental life." On hearing this statement, one cannot help exclaiming, "How great is the power of complexity!" Thought, as originating in the association and "consolidation" of sensations, is explained as follows: "What is *objectively* a wave of molecular change, propagated through a nerve centre, is *subjectively* a unit of feeling, akin in nature to what we call a nervous shock. . . . When a rapid succession of such waves yields a rapid succession of such units of feeling, there results the continuous feeling known as a sensation. . . . *Mind is constituted* when each sensation is assimilated to the faint forms of antecedent like sensations. The consolidation of successive units of feeling to form a sensation is paralleled, in a larger way, by the consolidation of successive sensations to form what we call the knowledge of the sensation as such, — to form the smallest separable portion of what we call thought, as distinguished from mere confused sentiency." "The cardinal fact" as to the "composition of mind" is that "while each vivid feeling is joined to, but distinguished from, other vivid feelings simultaneous and successive, it is joined to, and identified with, faint feelings that have resulted from foregoing vivid feelings. Each particular color, each special sound, each sensation of touch, taste, or smell, is at once known as unlike other sensations that limit it in space or time, and known as like the faint forms of certain sensations that have preceded it in time, — unites itself with foregoing sensations from which it does not differ in quality, but only in intensity."

"On this law of composition depends the orderly structure of mind. . . . Because of this tendency of vivid feelings severally to cohere with the faint forms of all preceding feelings like themselves, there arise what we call ideas." Simple notions are formed in this way; complex conceptions are "clusters of feelings joined with the faint forms of preceding like clusters." Then "complexity," with its wonderful power, produces *the higher ideas of the soul.* "Groups of groups coalesce with kindred groups of groups that preceded them; and in the higher types of mind, tracts of consciousness of an excessively composite character are produced, after the same manner. . . . This method of composition remains the same throughout the entire fabric of mind, from the formation of its simplest feelings up to the formation of those immense and complex aggregates of feelings which characterize its highest developments." Thus all intellectual life is developed *from what are, objectively, waves of molecular change, propagated through nerve centres!*

The simplicity and plausibility of these theories.

2. The best refutation of such philosophy as Spencer's is to be found in *the direct observation and impartial analysis of the facts of mental life.* A course of true psychological study reveals the exceeding inadequacy of all those theories which are founded on a one-sided appreciation of facts, and which owe their existence chiefly to the ingenuity of their authors. Yet, having discussed materialism, we shall add a few observations on those kindred schools of opinion which, uniting with materialism, form a delusive trinity.

First, we remark that the strength of sensationalism and associationalism lies mainly in the simplicity of their fundamental principles, and in their conformity to ordinary and objective thought. Our minds naturally look with favor upon simple theories. Knowing that the ultimate is always simple, we incline to accept the simple as the ultimate. Explanations of this character, moreover, are quickly comprehended and easily applied; for which reason, if they can be supported by any argument, they are sure of some favor. The fact that sensation is closely related to our outwardly directed thinkings, and often mingled with them, has led men to regard the sense-affection, resulting from the influence of external objects, as *of the same nature with the perception and the memory* of these objects; and from this beginning they have gone on to explain even the highest spiritual activities as the inward reproduction of sensations. Others, again, observing in the sequences of inward life the constant operation of the principle of association, — the most apparent of the laws of mind, — have attempted the complete explanation of mental activity by means of this law. The case would be paralleled in physical science by the philosopher who should profess to explain all phenomena by means of the law of gravitation.

They fail as explanations of thought.

Notwithstanding the simplicity and plausibility of the doctrines under consideration, the objections to any intelligent acceptance of them are insuperable. One principal difficulty is that these theories fail grievously as explanations of the phenomena of thought. Let us suppose, for a moment, that some of our ideas can be identified with bodily feelings and their modifications; it yet seems absurd to say that such conceptions as those of substances, spaces, times, powers, relations, numbers, and such ideas as those of person, agent, right, duty, interest, are merely "impressions" produced by the impact of external objects. These things are not the objects of any sense. We may be *directly cognizant of them*, but *not physically sensible of them.* Sensations cannot plausibly be identified with any notions save with those either of the sensations themselves or of the sense-affecting operations of matter, — the agents, powers, places, times, and other conditions involved being excluded. It is inconceivable that our ideas of these conditions should be constituted out of any feelings or clusterings of feelings. The associationalists perceive this difficulty; but, instead of recognizing its insuperable character, *they discard some of the radical conceptions of the human mind as the illusions of unphilosophic ignorance, and give very inadequate accounts of others.*

For example, the systems of Mill and Spencer make no place for the notion of substance. Mill defines mind, not as a conscious and intelligent substance, but as a "*series of states of consciousness;*" and Spencer, not as a substance having feelings, but as a series "*composed of feelings and of the relations between feelings*," every such relation being itself "a kind of feeling, — the momentary feeling accompanying the transition from one conspicuous feeling to an adjacent conspicuous feeling." According to Mill, matter is not an actual existence, much less a substance, but only "*the permanent possibility of sensation;*" while Spencer teaches that "*forces standing in certain correlations*" — that is, as externally opposing those forces which have taken the shape of mind — "form the whole content of our idea of matter."

Spencer's account of our notions of relation, as feelings produced by the transition from one sensation to another, is wholly inept. Relations, as such, can produce no feelings. These come only from some actions or operations in connection with which the relations are perceived. We hear two notes of music; but we do not hear their similarity, their simultaneousness, or their successiveness, or their equality or inequality in loudness, pitch, or length, or any other relation between them.

Then what singular conceptions of *space and time* are given by associationalism! "Each relation of co-existence is classed with other like relations of co-existence, and separated from relations of co-existence that are unlike it; and a kindred classing goes on among relations of sequence. Finally, by a further segregation, are formed that consolidated abstract of relations of co-existence which we know as space, and that consolidated abstract of relations of sequence which we know as time." Does it require much thought to see that *space and time are not of the nature of relations, and that the former is not co-existence, nor the latter sequence?* Not only so; it is inconceivable that any feelings or association of feelings could constitute even those conceptions of *existence*, of *co-existence*, and of *sequence* out of which Spencer would construct our notions of space and time. Such is the weakness of that analysis of the phenomena of thought which is consequent upon the self-imposed restrictions of sensationalism and associationalism.

They fail to explain knowledge and belief, and especially our fundamental convictions.

3. The incompetency of these forms of philosophy may be further illustrated from the account they give of the knowledge and belief of the soul. While professing to explain these phenomena, they really explain them away. According to these systems, memory is merely "the revivability of feelings," while conviction is the association of ideal feelings so strongly that they cannot be dissociated by an act of the will. Clearly, the revival or repetition of ideas is not all, nor even the essential part, of memory. In addition to this reproduction, there is the belief—not merely the thought, but the belief—that *the ideas now present were formerly experienced as perceptions of realities.* This belief is something distinct in nature both from the ideas in connection with which it is exercised, and from their attraction for each other in the co-existences and sequences of thought.

So, also, our convictions in general, though mostly involving the union of two conceptions, *always imply more than this union, and sometimes are exercised in connection with one conception only.* In every case, belief in the existence or non-existence of something is the essential element. When we say, "Mr. Cleveland exists," there is as much belief as in saying, "Mr. Cleveland is President;" and in all simple affirmations of existence, we cannot properly be said to conjoin two objects of thought, but only to express our belief in the existence of one. Thoughts, too, *may be inseparably associated which are not the statement of any belief.* The conceptions of an oft-repeated tale become as well linked together as if they constituted a true story, although, at the same time, they may be known to be purely fictitious. In short, neither feelings nor associations of feelings account for the phenomenon of belief.

Sceptical tendencies.

But the exceeding evil of a superficial philosophy is manifest when, in consequence of its incompetency to explain the true origin and nature of thought and of belief, it justifies the rejection of some of the fundamental convictions of the human mind. The logical thinker who starts with only the "impressions" of Hume or the "feelings" of Spencer, is brought at last either to the scepticism of the one or to the nescience of the other. When ideas are defined as the reproduction of internal changes correspondent to external changes, — no element of existence being admitted save that of change, — there is left for us only the knowledge of appearances. What we perceive is no longer the phenomena, or varying phases of real things, but *phenomena which are falsely asserted to be separable from realities.* Whether there are such things as substances in which these phenomenal changes occur, or such a thing as power to produce them, — in other words, whether beings and their attributes, properly so called, exist, — are points about which we know and can know nothing. Such are the teachings of these systems. This taking away of the ideas of substantial being, of power and attribute and causation, eviscerates the body of human knowledge; it leaves no object of belief save a thin phantasmagoria of appearances, covering emptiness only. There are no powers, no beings, in this showy, shadowy universe; nor are there laws, save certain unexplained and inexplicable uniformities of co-existence and of sequence! And in regard to the recurrence of "phenomena," our only source of rational judgment is the tendency of frequently repeated impressions to recall one another! It is astonishing that able men should propose to enlighten the world with doctrines like these. To any unsophisticated mind the absurdity of such doctrines is most apparent.

They fail as explanations of emotion and motivity.

We need not, in further antagonism to these delusive systems, consider their inadequate explanation of our emotions and motivities. Only strong attachment to preconceived theories can sustain the belief that our feelings, appreciative of the sublime and the beautiful, of the befitting and the ludicrous, of the right and the wrong, the joyful and the sad, the lovely and the hateful, are but modifications of impressions on the senses. And what associations of outwardly excited impressions or appetencies can be supposed to produce contempt, anger, pity, benevolence, the thirst for knowledge, the love of power, the earnest purposes of self-interest, and the high determinations of duty? A satisfactory account of these experiences calls for factors which the mere contact of the soul with outer things cannot furnish.

3. The foregoing discussion indicates the need of accurate introspection on the part of those who would philosophize concerning mind. Materialistic teachings begin with the error that *the thoughts of our sensations are of the same nature with the sensations themselves.* This might be admitted by one who would reject the greater absurdity that our higher and more rational thinkings are but modifications of sense. We see, however, no reason for any such admission.

We will not say, absolutely, that there can be no likeness between a sensation and our present perception or subsequent remembrance of it; possibly there may be some similarity between two psychical states, related to each other as those in question are. Let us imagine a mirror capable not only of reflecting the appearance of a present object, but of reproducing this appearance when the object should be absent. Might we not allow that in such a case not merely a correspondence, but also a sort of similarity, would exist between the appearance in the mirror and the object represented? So, if any one believes that there is a likeness between a present or past feeling and our knowledge or remembrance of it, it would be difficult to disprove such an opinion.

Nevertheless, an object and the reflection of it, though in a certain respect similar, *being totally unlike in their most radical and important characteristics*, it would be absurd to affirm that they are things of the same nature. In like manner, even though some likeness, some similarity of formation, were supposed to exist between a sensation and our thought of it, this would not show them to be things of the same kind.

But no proper community of nature.

That they are not, — that there is no proper community of nature between sensation and even that thought immediately concerned with it, — seems evident from their contrary characteristics. Sensations are obtrusive and vivid experiences; when they enter into our consciousness, they occupy and control the mind; our conceptions of them, like our other thoughts, are comparatively quiet and unaffecting. Sensations are in great measure the passive effects of external causes; our recollection of them arises wholly from the mind's own activity. Sensations are not subject to the guidance of the will; our thoughts of them may be entertained or dismissed at pleasure. Sensations have all more or less defined places in the sensorium; our ideas of them are not fixed in these places; if they have any special habitation, it is with our other thinkings in the brain. In short, sensations obey laws of their own; while our apprehension or remembrance of them is subjected to the laws of thought.

CHAPTER VIII.

THE ACTIVITY OF MIND.

1. HAVING dwelt at sufficient length on the subject of sense and questions connected with it, we proceed to the direct study of mind. We shall contemplate this power in its most general character first. Viewing its phenomena in this way, we find that they may be regarded either *subjectively* or *objectively*, — that is, either merely as modes of psychical life, or as being also related to their appropriate objects. From either aspect interesting discussions arise. For example, considering the intellect subjectively, two questions present themselves concerning its activity.

One is, *Are we always consciously active?* the other is, *Are we ever unconsciously active?* Sir William Hamilton answers both affirmatively. He thinks that the mind never ceases from conscious thought even in the deepest swoon or the soundest sleep; and that, in addition to this conscious activity, there are many mental movements of which we are unconscious. We incline to a negative answer in both cases, although we confess that the questions belong to a class which calls for moderation in our opinions.

Are we always consciously active? Opinions quoted.

In ancient times the doctrine of ceaseless conscious activity was taught by the Platonists, because, by means of it, they more perfectly contrasted ethereal spirit with senseless, inert matter. It was rejected by the Aristotelians, who made less use of assumptions and more of facts. Descartes held that the very essence of the soul consists in thought, or rather in conscious life, and therefore explained our continued existence as consisting in our continued activity. Leibnitz taught the doctrine of monads, — that the whole universe, both material and spiritual, is composed of ceaselessly active and energetic atoms. This determined his view of the soul. He supposed, however, that our spirits, though always active, are not always conscious. Dr. Porter maintains the view that the soul is constantly active, whether it be awake or asleep, and says that modern psychologists, excepting materialists only, are nearly unanimous in this opinion. Locke, on the other hand, contends that some men never dream at all, and that none are conscious that they dream continuously; while Dr. Reid gives his own experience as follows: —

Having mentioned how, in his early days, by a determined effort, he had freed himself from a habit of uneasy dreaming, he adds: "For at least forty years after, I dreamed none, to the best of my remembrance; and finding, from the testimony of others, that this is somewhat uncommon, I have often, as soon as I awoke, endeavored to recollect, without being able to recollect, anything that passed in my sleep." Reid's philosophy of our activity during sleep may be understood from his further remarks: "I am apt to think," he says, "that, as there is a state of sleep and a state wherein we are awake, so there is an intermediate state which partakes of the other two. If a man peremptorily resolves to rise at an early hour for some interesting purpose, he will of himself awake at that hour. A sick-nurse gets the habit of sleeping in such a manner that she hears the least whisper of the sick person, and yet is refreshed by this kind of half-sleep. The same is the case of a nurse who sleeps with a child in her arms. I have slept on horseback, but so as to preserve my balance; and if the horse stumbled I could make the exertion necessary to save me from a fall, as if I was awake."

Opinions criticised.

In regard to this question, we remark, first, that the opinions of those distinguished men who favor the unremitting conscious activity lose somewhat of their authority by reason of their connection, severally, with unfounded notions. The Platonists would find it difficult to show that an ethereal being might not rest as well as one of a gross nature. Descartes evidently errs in saying that the soul is thought; it is the substance which exercises thought. Leibnitz can give no proof for the existence of his monads; and the ceaseless activity of mind is not, as the words of Porter suggest, necessarily involved in its absolute immateriality.

In the next place, the facts adduced in favor of the theory of unremittent and conscious action are easily reconciled with the opposite opinion. The marching of soldiers and the watching of nurses while slumbering, and that consciousness of passing time which enables some to rouse themselves with tolerable correctness at a prescribed hour, occur when sleep is not sufficiently profound to prevent all mental activity. A greater degree of somnolency than that experienced during such performances takes away the capability for them. So also in dreaming and in somnambulism the current of life is evidently moving, and the sleep is not perfect. Hamilton, after experiments made upon himself, alleges that if one is aroused while falling asleep, he can always discover that he was in the commencement of a dream; and that if awakened suddenly at any time during sleep, he finds himself in the middle of a dream. To this we reply that absolutely undisturbed sleep is probably of rare occurrence; that Reid and others testify to an experience different from that of Hamilton; and that in those cases in which persons roused from deep sleep may find themselves dreaming, the dream may possibly have begun with the beginning of the disturbance. In most instances when we judge ourselves to have been dreaming long, our rest probably has not been very sound; but it is also well known that a dream of hours can take place within a few moments.

Jouffroy, the eminent French contemporary of Hamilton, comments on the fact that unusual noises or disturbances, even though slight, frequently prevent or break our repose, while customary sounds or movements have no such effect. It is difficult at first to sleep amid the clatter and shaking of a railway train; custom renders this easy. "See," says Jouffroy, "the mind, the judgment, ever wakeful, when alarmed by the unusual indications which come through the torpid senses, arouses or keeps alive the whole sensorium also." But here, again, there is only that partial sleep, that intermediate state between sleeping and waking, of which Reid speaks. Any inward feeling of novelty, danger, or uneasiness acts upon the senses, just as the senses act upon the mind, so as to prevent perfect repose. The phenomena observed by Jouffroy suggest that body and spirit tend *to wake or to sleep together*, the one with the other, rather than that the one slumbers while the other is awake; for if the body, or rather the bodily senses, were entirely dormant, the soul could not receive any indications whatever from without; and our consciousness of psychical action during sleep generally shows a reduced activity of the higher powers of thought fully equal to that exhibited by the powers of sense.

But while the facts adduced in evidence seem insufficient to establish the doctrine of ceaseless activity, they certainly support the belief that the mind is active, though with but feeble energy, during much the greater part of sleep. They also agree with the opinion that *spirit never rests of itself*, but always and only because of its subjection to bodily conditions. When the wearied brain ceases from working, then the soul sleeps; possibly then only. It may be that disembodied spirits never tire.

The common opinion that the deepest sleep is entirely dreamless and thoughtless is sustained by the fact that our repose becomes more profound in proportion to the exhaustion of nervous energy, provided this fall short of excess and injury. The action of the soul, so far as it can be observed by consciousness, obeys this law; and it is natural for us *to expect an increasing slowness of motion to terminate in absolute rest.*

Then, too, in swoons, and in the insensibility produced by powerful anæsthetics, the mind seems to be perfectly inactive. In such cases the most severe operations performed on one's body excite no sensations or other psychical movements. Mental life is arrested for the want of those corporeal conditions which have been imposed on its present exercise; but so soon as these return, it springs again into activity. In view of such facts as these, it is difficult to believe that the soul is always consciously active.

2. We now come to the inquiry, *whether the soul is ever unconsciously active.* This question is not whether experiences of thought or of motivity may not unconsciously impress the mind with tendencies to similar modes of experience. This is admitted; and it proves the existence of a power which is very different from those which directly manifest themselves in consciousness, but which perhaps operates only in immediate connection with the activities of our conscious powers.

Nor do we now ask whether there are "mental modifications" attended with a very slight degree of consciousness. No one denies that. Often trains of thought pass through our minds which engage our interest so little that if asked what we are thinking about, we reply that we are thinking of nothing. The mental energy has been so feeble that we cannot recall a single idea. For a similar reason most dreams are immediately forgotten; so that frequently, even when we can say that we have been dreaming, we find it impossible to tell what we have been dreaming about.

The question is, *whether there be mental activities of a similar nature to those of conscious life, of which, however, we are utterly unconscious at the time of their taking place, and which are manifested afterwards through effects of which we are conscious.* We state the question in this way, because the idea of mental movements which never manifest results in consciousness may be set down as highly improbable, and because the faculty of consciousness is so close a beholder of psychical changes that positive evidence is needed of the occurrence of activities without its sphere of observation. These considerations throw the "burden of proof" on the advocates of unconscious "modifications;" and this burden has been accepted by them.

Hamilton uses three arguments in support of his position. The first is founded on the fact that *no sense can consciously perceive any object smaller than a certain minimum.* Vision results from the reflection of light; but if the surface of an object be diminished beyond a given limit, the object becomes invisible. "Therefore," argues Hamilton, "each part must act so as to make up the visibility of the whole. Here, consequently, are minute modifications of mind, of which we are entirely unconscious. We cannot see one forest-leaf at a distance, but the multitude of them together produces an extended view. The distant murmur of the sea is made up of parts, any one of which by itself would be entirely inaudible. The taste of sweetmeats, the odor of flowers, the soft touch of velvet or of down, may each be considered as the result of an infinity of unfelt modifications."

This reasoning is well met, as we think, by a distinction made by Dr. Porter, between the affection of the organ of sense and the affection of the mind consequent upon it. The united influence of many leaves or waves or particles may be needful to bring the organ into a condition which qualifies it to excite a sensation in the mind. But *anything less than the perceptible minimum might produce its attenuated effect upon the nerve without moving the mind in the least.* In like manner, during swoons and times of absolute insensibility, there is an action of the nervous system too weak to affect the mind, yet sufficient to sustain various functions of the body. Then, also, in addition to the foregoing, we may question whether an infinitesimal force can produce any movement even in the nerves.

Hamilton's second argument is connected with the law of *the association of ideas.* Let A, B, and C be three thoughts, of which the first and the last have each been associated with the second, but never yet with each other. In this case A may suggest B, and B may suggest C; but A cannot suggest C save by first suggesting B. Now it may happen, says Hamilton, that A suggests C without our having any consciousness of B. This last-named thought, therefore, must have taken place as a latent modification of mind. If one billiard-ball strike another at the end of a row of similar balls arranged in a straight line and touching each other, — the blow being given in the exact direction of the line, — the intermediate balls do not move; only the farthest ball is propelled forward. After this fashion one idea suggests another, "the suggestion passing through one or more ideas which do not themselves rise into consciousness." Sir William, thinking of Ben Lomond, instantly thought of Prussian education, and could not imagine why. After reflection, he remembered that he had met a German gentleman on the top of that mountain. This remembrance appeared to him to furnish the lost link by which his conceptions had been unconsciously connected.

We do not question the fact of the immediate successiveness of the ideas in the mind of so accurate an observer; but can we be sure that the mountain summit and Prussian education had not previously at all been connected in his thinking? Is it not possible that the subject of Prussian education, having been suggested by the appearance of the German traveller, had engaged the Professor's consideration somewhat at the time when he met the gentleman on the mountain? Nothing could be more natural than this in the case of Sir William. But if this were so, the instance cited would only be one of the ordinary association of thought. In short, we would account for the apparent want of connection, often noticed between successive ideas, either by reference to a previous and temporarily forgotten association, or else by that rapid oblivion which frequently overtakes such links of thought as do not, while passing, secure our interest and attention. It is difficult to conceive how the mind can think, even in the feeblest way, without at the same time knowing that it thinks; this, of course, also in a way correspondingly feeble.

The last argument of Hamilton is derived from *our acquired dexterities*. When one plays rapidly on a piano, or other musical instrument, he seems to strike many notes — especially in a familiar piece — from habit, and without thought of the individual motions. At times even the chief attention of a practised performer may be occupied with objects not at all related to his playing. Some have accounted for this by ascribing the activity wholly, or nearly so, to the body, acting automatically and under the influence, though not under the direction, of the mind. This explanation excludes mental modifications, whether conscious or unconscious. But it is incredible. We would accept the idea of latent modifications in preference to it. There is always, we believe, something intellectual in our dexterities; their apparent automatism is similar to what takes place when one reads aloud to others sentences, and even passages, which make no impression on his own mind, — that is, no impression such as can be recalled. Drs. Reid and Hartley endeavored to explain these activities by a force of habit, a proneness of spirit, operating without thought. They liken this to instinct. But we question whether even instinct acts without any thought. There is no understanding of its end, but there is some notion of its immediate work.

The views of Professor Stewart on this subject seem, on the whole, preferable to any others. He holds that actions originally voluntary (and therefore also intellectual) always continue so, though we may not be able to recollect every particular volition of a series. He thinks that an act of the will precedes every motion of every finger of the musician; and compares the skill of the player to that of the accountant who sums up, almost at a glance, a long column of numbers, retaining no knowledge of the individual figures. The instantaneous forgetfulness accompanying such mental work is experienced by every student. How often, after a page has been rapidly perused, it is difficult to repeat one sentence — nay, even one word — the author's matter, only, remaining in the memory! This inability to recall the details of each successive act of mind is to be explained by reason of the exceeding ease and quickness of the intellectual performance, and from the corresponding slightness of attention given to each particular; it is not the result of any unconsciousness. So, likewise, when we say that an earnest speaker is unconscious of his delivery, we mean that he pays no attention to it, and that his consciousness of it is weak, disregarded, and without effect; but not, in the strict sense, that he has no consciousness of it at all. That there is a slight consciousness is evident; for if some accessory on which he has been accustomed to depend — a pencil, a watch-chain, a buttonhole, a pocket-handkerchief, a coat-tail — be removed from reach, it is instantly missed, and some time passes before the previous degree of unconsciousness is regained. In like manner, should some key of the piano become accidentally broken and fail to respond to the quick touch; should some figure in the column of addition be found illegible; should some word be omitted or even wrongly spelled on the printed page, — the want would be immediately perceived, and would induce an attentive and deliberate consciousness.

One qualification, perhaps, might render Professor Stewart's explanation more entirely satisfactory. He says that the slow and the rapid operations "are carried on in precisely the same manner, and differ only in the degree of rapidity." This rapidity is the chief difference; but we believe that there is also somewhat of a change in the mode of the mind's thinking. We are of opinion that combinations, which at first furnish the objects of several successive thoughts, often come to be comprehended *in one complex idea, or in one complexity of co-existing ideas, and that this remains and operates in the mind till it has been fully realized in action.* Thus a whole bar of music before its execution, or a whole sentence before its utterance, may be included in one easy apprehension. But in the case of any complex conception, our attention does not rest successively on its several parts, but on the conception as a whole. This suggests that although minute actions are objects of thought, they yet may not be the objects of separate and independent thought; and if such be the case, there is still less room for wonder that they are not individually remembered.

Finally, supposing — what we do not believe — that some psychical operations entirely escape our observation, this would not prove that such operations occur outside of the sphere of consciousness, but only *that they have been overpassed and neglected within it.* If such a doctrine could be proved, it would show that our power of internal cognition, like our power of external cognition, may wholly lose sight of familiar objects because of the presence of others more interesting and impressive. Some show of argument could be made for this theory. But there is no evidence for the assertion of Hamilton, that "the sphere of our conscious modifications is only a small circle in the centre of a far wider sphere of action and passion, of which we are only conscious through its effects."

CHAPTER IX.

MENTAL STATES AND MENTAL ACTIONS.

1. FREQUENTLY, both in philosophic and in ordinary discourse, we distinguish between *the states and the actions*, and also between *the processes and the products* of the intellect. The consideration of these distinctions may contribute to clearness of thought; and, with a similar end in view, we may profitably discuss the question, whether *the mind is capable of having a plurality of states*, or of performing a plurality of actions, *simultaneously*.

Question defined. Action and state distinguished.

In speaking of states, we do not refer to those more or less permanent conditions of our psychical powers which manifest themselves in modifications of our activity, and which exist during our inactivity. There are such states; for example, those of vigor and of feebleness, of liveliness and of dulness, of soundness and of insanity, of immaturity and of development. We now refer only to those states of mind of which we are immediately conscious, and which themselves are the manifestations of our immanent faculties and dispositions. Thus doubt, certainty, conviction, belief, knowledge, ignorance, are states; while perceiving, recollecting, judging, imagining, are actions.

This distinction between mental states and mental actions is a real one, yet is neither so great, nor of the same character, as that between action and state in the material world. It is not, for instance, like that between the action of chemical agents and their state, or condition, after their action on each other has taken place. It is more like that between seeing and beholding, between merely touching some object and feeling it. In short, *an intellectual state may be regarded as a continuous activity, and an intellectual action as a momentary one.* The latter either terminates at once or is the beginning of a mental state. We believe that consciousness reveals activity in every psychical condition, and that when any conception or subject occupies the mind, there is elicited a continued exercise of power. There is something analogous to that condition of excitement, that state of motion, produced in the luminiferous ether by a light-giving or a light-reflecting body. As the retina of the eye is continuously affected by the rapidly successive waves of light, so the idea of the object obtained through vision appears to be a continuous or rapidly repeated mental activity. The thoughts awakened and maintained in the mind by the sense of sight, when we may be attentively regarding the objects corresponding to them, may properly illustrate all intellectual states. Gazing, for example, at a flaming candle or a flying arrow, we see the slightest variations in its figure or place, its most delicate flickerings and motions; and from such observations we infer that continuous thoughts resemble the reflections of a mirror rather than any states of positive rest.

Process and product.

The distinction between the processes and the products of the intellect is somewhat similar to that just discussed, and presents an important difference in modes of mental activity. It is the distinction commonly made between *forming an idea*, or conception, of an object and *the idea when formed;* and it is paralleled in the difference between forming an aversion or an attachment, and the aversion or attachment when formed. Both processes and products are modes of thought, and do not differ radically in nature. They are not related to each other as mechanical processes and their products are. The carpenter's skilful use of tools and the desk or table which he may make, are things of totally different natures. But Defoe's final and fixed conception of Robinson Crusoe's castle, and the various thinkings of his mind which resulted in that conception, were not essentially unlike: they were both mental activities. Yet we distinguish the process and the product. The former always precedes the latter, and may be so imperfect or feeble as to fail of a result, in which case there is no product. The process is composed of successive parts: the product has a more perfect unity; its parts constitute one thought. The product often can be easily and fully recalled, when the process may have been forgotten and lost in obscurity. The process consists commonly of a series of actions; when any of these is prolonged into a state, it may be regarded as a partial product, awaiting the union of other parts. The product, though it may be employed and then immediately dismissed, is frequently used as a mental state around which other thoughts arise.

Sometimes in experience it is easy to discriminate between product and process; in other cases this is difficult, because of the rapid transition of the one into the other. In adult sense-perception the result is so instantaneous that no process is ordinarily perceptible. Yet undoubtedly the infantile mind, in forming ideas of material objects, employs a series of sensations and judgments, some of the latter also being the gradual acquisitions of experience. The instantaneous sight of a man, a tree, a house, an animal, is the work of trained or educated perception. The processes which precede mental products are perhaps more discernible in the workings of the rational faculty than in those of any other. We see plainly how the thoughts which follow one another in a definition coalesce so as to form the notion defined; and how, after the frequent use of an attributive judgment, its elements unite so as to produce a changed or an enlarged conception. Thus, having several times opened some book, and found it printed in the German language, we thereafter, on seeing it, think of it as a German book.

Product and object distinguished.

We should be careful not to confound the distinction between process and product with that between the process, or act, and the object, either of perception or of conception, or of any other exercise of thought. Sir William Hamilton, following Continental authorities, and others, following Hamilton, have fallen into this error. We may cite one passage out of many. In his "Logic," having stated that ordinarily "conception means both the act of conceiving and the object conceived," Sir William adds: "I shall use the expression 'concept' for the *object* of conception; and 'conception' I shall exclusively employ to designate the *act* of conceiving." In these and similar statements the product and the object of thought are plainly identified; which is yet more evident from the fact that the term "concept" is avowedly and invariably used by Hamilton as the equivalent of the term "notion." This mistake is palliated by its connection with difficulties, which we shall consider hereafter, pertaining to "ideal objects;" yet it is undoubtedly a mistake. A mental product, no less than a mental act or process, is simply a mode of thought, and is not the object of its own exercise of thought.

This power of the intellect to put the result of its thinkings into permanent, or rather reproducible, ideas is of *the highest necessity and utility.* Without it, progressive science, and even fixed knowledge of any kind, would be impossible. Our conceptions would be in the perpetual confusion of formation and of dissolution. No work could be accomplished by the imagination; the materials would fall to pieces as soon as they had been put together. Memory, too, if it acted at all, would present fleeting and formless elements of thought, rather than serviceable recollections. And the rational faculty, being deprived of fixed notions, would strive in vain after any knowledge of the universe.

This ability to form mental products might very properly be called *the acquisitive power* of the mind. It has not till lately received due attention from psychologists. As President Porter remarks, it is "clearly distinguishable from the power to know," or to think. It should certainly be reckoned among the subsidiary or secondary powers of the intellect.

Can we have more thoughts than one at once? Opinions quoted.

2. Philosophers in past times have been greatly divided as to the number of states or actions possible for the mind at any one time. The saying is a common one, that we cannot attend to more than one thing at once; and it certainly is true that the human mind is incapable of considering different subjects simultaneously. This useful practical observation, and certain supposed requirements of the doctrine of the essential oneness and simplicity of spirit, have led to some extreme opinions. Dr. Thomas Brown, the eloquent colleague and successor of Professor Stewart in the chair of philosophy at Edinburgh, in his eleventh lecture, says: "If the mind of man, and all the changes which take place in it from the first feeling with which life commenced to the last with which it closes, could be made visible to any other thinking being, a certain series of feelings alone — that is to say, a certain number of successive states of mind — would be distinguishable in it, forming, indeed, a variety of sensations and thoughts and passions as momentary states of the mind, but *all of them existing individually and successively to each other.*"

The views of Stewart, though differently expressed from those of Brown, were radically the same. With characteristic moderation he teaches that we cannot "attend at one and the same instant to objects which we can attend to separately." He thinks that the "astonishing rapidity" of thought is sufficient to explain the apparent simultaneity of mental operations. He asserts that a good musician does not attend to the different parts of a harmony at once, but varies his attention from one part to another, his thoughts being so quick as to allow no perception of intervals of time. According to his theory, when one plays rapidly on the piano, and also sings, reading both song and music from a book, his perception of the notes, his reading of the words, his execution on the instrument, his vocalization of the language, his hearing of the music and of the poetry, his enjoyment and understanding of the melody and of the sentiment, and the various thoughts and feelings which accompany these things, are all, not simultaneous, but successive. So, too, when the complete figure of an object is painted on the retina, the mind perceives it only by a great number of different acts of attention performed with marvellous celerity; "for," says Stewart, "as no two points of the outline are in the same direction, every point by itself constitutes just as distinct an object of attention as if it were separated by an interval of empty space from all the rest."

The assumption that the attention of the mind can act only along one geometrical straight line at a time, and therefore not on a surface or an outline, seems entirely without probability. Stewart says that if this were not so, "we should, at the first glance, have as distinct an idea of a figure of a thousand sides as of a triangle or a square." But does this follow? Surely the power to perceive three, four, five, or six objects at a time, and to give them each some measure of attention, does not imply a similar power as to a hundred or a thousand? The opinions of these distinguished Scotch professors appear to have been handed down from disputations of the schoolmen. Thomas Aquinas, Albertus Magnus, and others upheld the affirmative of the question, *Possitne intellectus noster plura simul intelligere?* The negative was maintained by Duns Scotus, Occam the Invincible, and others.

Hamilton's discussion is very complete. He approves of the opinion of some French philosophers, that we can perceive distinctly six separate objects, or six separate groups of objects, at once. "If," he says, "you throw a handful of marbles on the floor, you will find it difficult to view at once more than six or seven; but if you group them into twos or threes or fives, you can comprehend as many groups as you can units, because the mind considers these groups only as units. It views them as wholes, and throws their parts out of consideration." A similar experiment might be tried with printed words; for the eye can distinctly grasp a word of eight or nine letters without any trouble.

The affirmative maintained and illustrated.

The prevailing opinion at present is that the intellect is capable of a simultaneous plurality of states or activities; and this view agrees with experience. We undoubtedly can perform several actions at once. If this be so, may not the ideas which cause them be simultaneous too? When we rub one hand upon the other, the sensations as well as the actions appear to exist together. When one looks at the branches of a tree, the boards of a fence, or even a group of persons, only metaphysical subtilty can suggest that they are not seen at once. The stress of thought may easily be concentrated on one of the objects; but so long as no special interest is excited, all are viewed alike.

The perception of relations, also, requires a single comprehensive perception of the objects related. How could we form any idea of a relation if we did not at the same time think of the objects between which the relation may exist? Who could conceive of marriage without also having both husband and wife in mind? In like manner every sentence, with its subject, predicate, copula, and modifying words, must be considered as the expression of one complexity of ideas. We may, it is true, compose part of a sentence without having a definite conception of the remaining part; but it is also true that we could not even begin the construction of a sentence if we did not, from the first, have thoughts, more or less definite, of the plurality of objects involved, and of their mutual relations. When Cicero, in the commencement of his oration for Archias, said, "Si in me est ingenium, judices," he certainly understood well in what way he was about to continue and to terminate that long, graceful sentence, and had in view the several parts of it and their mutual connections.

A simple experiment, illustrative of this point, can easily be tried by any one. Let him take some statement, the sense of which he fully comprehends, and let him think only one thought in it at a time. He will find that, in doing so, he loses also the meaning of the statement. For example, in the sentence "Cæsar conquered the Gauls," we may think of Cæsar, of conquest, and of the Gauls, separately; but we fail to possess ourselves of the assertion if we do not think all three thoughts together.

Moreover, those mental products which we call *complex ideas are composed of many constituents, each of them an idea by itself, but all of them existing simultaneously in composition.* The vast majority of our thoughts are such combinations. Nor can we find any important difference between them and the collection of ideas contained in them, save this only, that the constituent ideas exist and adhere together. The analysis of any common conception — that, for instance, of a coin, a knife, a book, or a pen — will illustrate this remark.

We think, therefore, that a belief in the co-existence of mental states is conformable with facts. And why should it not be so? A ball of iron may, at the same time, receive and transmit heat, be influenced by gravitation, attract the magnetic needle, move onward through the air, displace opposing obstacles, and perform many other functions. Why may not the soul, an infinitely more subtile substance, act in many ways at once? Indeed, to one exercising attentive consideration, the question arises whether the possible rapidity of the soul's successive movements be not surpassed in wonderfulness by the possible multitude of its co-existent activities.

Attention distinguished from thought.

At the same time we are far from saying that the mind has the power of directing its attention equally to many objects at once. Not every act of intellect is accompanied with that special exercise of vigor which is commonly called attention. Hence the inquiry, whether we can attend to many things simultaneously, is to be distinguished from the inquiry, whether we can think of many things simultaneously. As a good sportsman can only bring down one or two or three birds at a time, though a whole covey may rise before him, so the mind, while many thoughts may be present to it, can address itself to the consideration only of a few. It is to be noticed, also, that a concentration of the power of thinking on one object *sensibly withdraws it from other objects.* While one looks carelessly upon his open hand, all the fingers may be seen distinctly; but if he attend particularly to a point or mark on one finger, the perception of the others is immediately weakened. In the case of complex ideas, in which a whole is formed out of several constituents, the full attention of the mind probably can be given to the conception in all its parts; generally, however, one element becomes specially prominent; and this appears to be always the case where the conception is made a subject of study. Every human mind has a certain limited amount of intellectual energy. This can be devoted almost entirely to one thought, leaving but a small residuum for division among other thoughts that may exist within one's consciousness; or if the energy be directed towards several objects, the share given to each is less in proportion to their number. We can conceive, however, of a mind of infinite energy, whose knowledge most perfectly and fully, and at the same instant of time, comprehends every object, and every part of every object, in the wide universe.

CHAPTER X.

THE OBJECTIVITY OF THOUGHT.

1. THE chief importance of thought does not arise from its character as a mental experience, but from the fact that it is the instrument of knowledge, — the agency by which the soul is brought into conscious relations with the universe. The whole wonderful life of man as a spiritual being originates from thought; and this, too, simply because thought brings the soul into connection with *being* in its various forms.

It is of the very nature of thought to have that peculiar relation to existence which is indicated in saying that *thought is the reflex of existence:* every thought, however feeble, is thus related to some being, or form of being, which is, therefore, styled the object of the thought. That essential characteristic of thought by reason of which it is correspondent to existence, may be called the objectivity of thought.

The terms "being" and "existence."

"Being" and "existence" are terms exactly equivalent to each other in their proper and original use; and, as such, they are employed in two different senses. *Their abstract meaning is expressed when we speak of the being or existence of anything*, or when we predicate being or existence of anything, saying, "It is," "It exists," or, "It has being," "It has existence." Thus, if asked about the Emperor of China, we might say that we know that there is such a person, or that such a person exists. With this abstract sense of these terms we shall have more to do hereafter. Their other meaning is that which they have when employed concretely. They then signify, *not the attribute of being or existence, but whatever possesses this attribute as having it;* in other words, *anything which exists.* The human body is a material, and the human soul a spiritual, existence; and we speak of an existence and of existences, of a being and of beings, and, using the terms collectively, of existence in general, and of being in general.

In this concrete sense the terms are employed both with a narrower and with a wider application. In the narrower, they signify any kind of substantial existence, whether spiritual or material. God, angels, men, mountains, seas, plains, are beings, or existences. But it is to be noticed that in this signification the term "being" is not used so freely as "existence" for every kind of substance; it is generally restricted to living beings. In the wider application, "being" and "existence" signify anything whatever that exists; and in this sense the word "existence" is generally preferred to the word "being." Thus space, time, power, actions, changes, and relations, as well as material and spiritual substances, are existences; and all things whatever, taken collectively, constitute existence in general. Now, when we say that every thought has objectivity, and is related to some form of being or existence, *we use these terms, not in their abstract, but in their concrete sense, and that, too, in this last and most unrestricted application;* for there is no form of existence which does not find its reflex in a corresponding form of thought.

The relation between thought and objects of thought.

2. This relation between thought and the existence, or form of existence, to which it corresponds, is of a peculiar nature, and should be distinguished from all other relations. It is not the relation of an effect to a cause; for the object of thought is wholly inactive, and the exercise of intelligence is the work of the mind itself. Neither is it that of the conditioned to the condition: existence is a condition of thought, in a certain sense; but the correspondence in question is a relation other than this. A mirror cannot form a reflection without an object, but the correspondence between reflection and object is distinguishable from the dependence of the former upon the latter. Again, the relation of thought and object is not that of similarity. Things which are utterly unlike may yet correspond. One part of an invention may correspond to another, as a key to a lock; an instrument may correspond to its use, as an oar to rowing; or a sign may correspond to the thing signified, as a printed to a spoken word. But this does not involve any similarity. The correspondence between thought and its objects is probably closer and more minute than any other correspondence; but so far as we can judge, there is no likeness between them. What resemblance can there be between hardness and the idea of hardness, sharpness and the idea of sharpness, weight and the idea of weight, solidity and the idea of solidity? What similarity is there between the Roman people, with their history of war and empire, and our knowledge of that people?

Mind is so different from matter that we cannot suppose our conceptions of material things to be like the things themselves; and as for psychical objects, we know that our ideas of actions, desires, emotions, virtues, vices, weaknesses, and abilities have no likeness to these things. The only thought in which we can discover any similarity to its object is *the thought of a thought*, for in such a conception the original thought is repeated and incorporated. This likeness, however, is accidental.

Moreover, it is insufficient to say that the relation between thought and its objects is one of correspondence. To say that food is useful to man does not express its peculiar mode of usefulness. So, in this case, *the term "correspondence" does not express the full essence of the matter;* there is also a simple and indefinable peculiarity. At the same time the nature of the relation in question is well known and easily understood. When a merchant says he is thinking of some enterprise, we know what he means, and perceive the relation between the enterprise and his thought. We see, too, how this relation arises out of, and belongs to, the very nature of thought, and how it contributes to make thought a moving and impelling power.

The terms "objectivity" and "objectuality."

We give the name "objectivity" to that characteristic of thought which we regard as the most essential and distinguishing, because we can find no other name more appropriate. It may be said that the term is more properly applicable to that which is the object of thought than to thought itself. To this we reply that thought itself, as related to its object, is in a certain sense connected with it, and therefore is sometimes styled objective. For example, speaking of some idea of the imagination, we may say that although of subjective origin, it has in it, nevertheless, an objective reference. If authority be needed to justify our use of language, that of Sir William Hamilton may suffice. In his "Logic," distinguishing two inward experiences, knowledge and belief, he says: "The one is perspicuous and objective; the other is obscure and subjective." He says, also, that error often arises "from the commutation of what is subjective with what is objective in thought." In these statements the term "objective" corresponds exactly with our objectivity. Could any better term be found, we would gladly use it.

Here let us remark that it would be advantageous to distinguish, by our use of terms, *between the character of thought as related to its object, and the character of any object, or part or quality of an object, as related to our thought of it.* When it should be desirable to indicate the latter character unequivocally, we would suggest the use of the word "objectuality." We might then say that thought, as such, has objectivity, but not objectuality; and that existences, as the objects of thought, have objectuality, but not objectivity.

Our doctrine specifically stated.

In saying that thought always has objectivity as a part of its essence, *we do not mean to affirm, literally, that thought always has objects.* We often have thoughts without any true or real objects whatever; and we sometimes have conceptions to which no reality ever has corresponded or ever shall correspond. We mean only that the nature or form of thought has that peculiar correspondence, already mentioned, with the nature or form of things; and that, so far as we have thought, it corresponds in its forms with forms of existence. This statement would hold though the universe were annihilated or had never been created. The conception of a universe yet to be, would correspond with the nature of that universe. An infinite mind might conceive of ten thousand systems, each extremely different from the existing cosmos, and having marked peculiarities of its own; yet in every case the conception would correspond in its formation with the formation of a system of things. Any psychical state which should have in it no reference to any form or mode of existence could not be a thought, but would be something totally different. Objectivity belongs to the very essence of thought.

Proved inductively, and from the cognitional origin of all our ideas.

3. The foregoing doctrine is so easily and immediately inferred from an examination of our thinkings that formal proof of it seems scarcely needed. Let any one make the trial; he will find that *he cannot think at all if he do not either think of something or as if of something.* Yet this truth may be further illustrated, and may be maintained against objections, by one or two confirmatory statements. The objectivity of thought is involved in the fact that the elementary origin of all our ideas is to be found in our perceptions of actual existence. Study shows that the constituent elements of our most fanciful and our most abstract, no less than those of our more common and matter-of-fact, conceptions are all derived from our cognitions of the real and actual. Imagination is a constructive faculty, and can work only with materials furnished by the powers of immediate knowledge. *The most extravagant combinations of poetry and romance are formed from thoughts acquired in actual experience.* In like manner our abstract notions and our general fundamental principles are all obtained from cognitive thought by certain mental operations.' Sometimes conceptions are thus formed to which no real objects agree, — whose correlatives, in one sense at least, would be more perfect than any real objects; but this is done by certain intellectual diminutions and additions whereby we lessen the degree of some attributes and add to the degree of others, not by the creation of new elements of thought. So also, by the well-known process of generalization, the mind forms its fundamental ideas and judgments from immediate and concrete cognitions. Such thoughts as space,

power, time, change, substance, and our judgments setting forth the necessary relations of these things, are first entertained by the intellect, not as general notions or truths, but as elements in the perception of particular facts and objects.

Modern philosophy has done a great service to mankind in establishing the doctrine that *general ideas and truths are, in all cases, derived from the actual and the particular.* This was one immediate result of the investigations of a famous man, a junior contemporary of Descartes, and an equally independent thinker. John Locke, about the year 1660, abandoning the scholastic philosophy in which he had been educated at Oxford, sought for a more satisfactory theory of thought and knowledge. With strong native good sense he accepted as ultimate the reliability of our immediate perceptions, and found the source of all knowledge in what he called "sensation and reflection," — that is, in our external and our internal cognitions. In so doing, he struck the true line in which all satisfactory progress in modern metaphysics has been made. As to the special point under discussion Locke expresses himself as follows: "The dominion of man in this little world of his own understanding is much the same as in the great world of visible things; wherein his power, however managed by art and skill, reaches no further than to compound and divide the materials that are made to his hand, but can do nothing towards making the least particle of matter, or destroying one atom already in being. The same inability will any one find in himself to fashion in his understanding any simple idea not received by the powers which God has given him."

Proved from an analysis of the constructions of the imagination.

4. Again, that forms of thought are correspondent with forms of existence is evidenced by the fact that not only every idea, but also every construction of ideas, so far as really and distinctly made, is of that which is possible to be. So far as elementary conceptions are concerned, this would follow from the fact just considered, that such conceptions are derived from cognitions of the actual. The actual is always possible. On the same ground it is clear that any combination of ideas must be made up of constituents corresponding to various simple modes of existence, and that all our ideas, therefore, at least so far as respects their materials, have objectivity.

The question, however, remains, whether our complex conceptions *as wholes* are always of things possible; and this inquiry is important. For if only the possible is conceivable, then possible constructions of thought are limited to possible constructions of existence; and this would give an additional significance to the doctrine of objectivity. Nor is the proof of this point so difficult as might be supposed. *In our cognitions of fact we perceive, in actual operation, the laws of the necessary and the possible;* and in this way we become qualified to judge, in any case, whether things corresponding to our conceptions would conform to those laws or not. We hold that intellectual constructions, so far as they may be actually and distinctly made, always represent possibilities. Complex conceptions may indeed be formed whose parts may be more or less contradictory, and which could not therefore have any reality corresponding to them; but we believe that *in such cases the contradiction is left out of the conception*, and the construction of thought, so far as it really takes place, is of the possible.

By reason of certain laws of Nature, a man could not live with mermaids under water in the caves of the sea; but should we leave those obstructive laws out of consideration, the conception presents a certain kind, or degree, of possibility. On this the imagination builds. It is the duty of a poet, first, to avoid absurdities; but if this cannot be, then to conceal them with all the art at his command. He can combine only ideas of things possible. That pure impossibilities are inconceivable may be shown by experiment. Try to conceive — that is, to think fully and distinctly — of two neighboring mountains without any valley between them; of the co-existence in duration of the first and the last moments of an hour, or days of a year, or years of a century; or of an equilateral quadrilateral, one of whose angles only is a right angle, the rest being either acute or obtuse. Endeavor to suppose that three dollars might be equal to five, or that they might be less or more than three; that a man might literally be another man, or might not be himself; that a traveller might go from one city to another, or an angel from one star to another, without passing through the intermediate space; that a statement can, at the same time and in the same particulars, be both true and false; or that a substance can be both existent and non-existent at once. Such trials as these will convince one that *the conception of the impossible is itself an impossibility*, and that, consequently, conceptions of the possible are the only possible conceptions. In other words, and more explicitly, we can think of things only so far as the existence of them would harmonize with the necessary laws of being.

Reid's opinion controverted. Dr. Reid, in the third chapter of his fourth essay, argues against the doctrine that we can conceive only of the possible. His chief reliance is the fact that we can understand the statement of an impossibility when made in the form of a proposition. He would admit that we could not conceive distinctly of a triangle two of whose sides taken together would be exactly equal to the third side. But he says: "I understand as distinctly the meaning of this proposition, 'Any two sides of a triangle are together equal to the third,' as of this, 'Any two sides of a triangle are together greater than the third.'"

It must be allowed that many statements of things impossible are intelligible, and also that there is no radical difference between understanding a proposition and conceiving it, or constructing its thoughts into one notion. Nevertheless, we think that there are two different degrees or modes of understanding a statement, — the one partial and superficial, the other thorough and complete. According to the former, we conceive that a thing is or may be so; according to the latter, not merely that it is so, but also how it is so. And we believe that *propositions or conceptions involving impossibilities are constructed by the mind only partially, and only so far as they may contain elements of possibility.* We can say, "A man dwelt twenty years among the mermaids," or we can think of a man dwelling twenty years among the mermaids, notwithstanding all the absurdity connected with the supposed existence of such creatures, and the living of a man in their submarine abodes. But, in doing so, all that is impossible or incredible in the case is treated with neglect. In the same way, when constructing the proposition, "Any two sides of a triangle are together equal to the third," we do not think closely or fully of the sides and their relations. Regarding the two sides simply as two lines, we find nothing absurd in the idea that, as two lines, they are equal to a third line; and although we recognize all the lines as sides of a triangle, we for the time leave out of view the necessity as to their comparative length which results from the shape of the figure.

That things impossible can be conceived of only as now described, is evident also from the fact that *the difficulty of understanding a proposition increases in proportion to its flagrant absurdity*, and that a statement which has in it no element of possibility is unintelligible and void of sense. The mind wholly refuses to construct the conception of three and two being six, even though two numbers often, by addition, make a third. In like manner the assertion that "the three sides of a triangle are equal to a pound of butter, a loaf of bread, and a beefsteak," cannot be understood at all. Why? Because it has in it no element of possibility. It would be a dangerous rule to say that whatever can be imagined distinctly is possible, as some philosophers have taught; but undoubtedly nothing can be conceived of which has not in it some element of possibility, whether it have also elements of impossibility or not; and it can be thought of only so far as it has elements of possibility, the impossibilities being left out of view. Since, therefore, all our ideas concern either the actual, in the perception of which they originate, or the possible, or the impossible only so far as it may contain elements of possibility, it is clear that all thought has that peculiar correspondence with the forms of existence which we have called objectivity.

CHAPTER XI.

THE ULTIMATE IN THOUGHT.

1. VIEWING thought in general *as objective, and without reference to any difference in faculties or in objects*, the question arises, Is it exercised in one mode only, or in several? in other words, What are the ultimate modes of thought? We are of opinion that there are three such modes, — that *we can think of things*, first, *as existing*, secondly, *as non-existent*, and thirdly, *without reference either to their existence or to their non-existence;* and we regard this statement as a cardinal point in the philosophy of mind.

Opinions quoted. Hamilton, Porter, Reid.

The doctrine generally taught at the present day allows only one ultimate mode of thought, — namely, the thinking of things as existent. For example, Sir William Hamilton says: "No thought is possible except under the category of existence. All that we perceive or imagine as different from us, we perceive or imagine as *objectively* existent. All that we are conscious of as an act or modification of self, we are conscious of only as *subjectively* existent. All thought, therefore, implies the thought of existence. . . . Thinking an object, I cannot but think it to exist; in other words, I cannot annihilate it in thought. I may think away from it, I may turn to other things, and I can thus exclude it from my consciousness; but actually thinking it, I cannot think it as non-existent; for as it is thought, so it is thought existent." President Porter expresses similar views, and even asserts that all thought, or "knowledge," as he terms it, involves *the affirmation* of existence. He says: "After every property or relation which we know of an object is set aside from any existing thought or thing, there remains the affirmation, 'It is.' This cannot be thought away." Against these and other authorities, we can quote only an old paper of Reid's, published by Dr. McCosh in his "Scottish Philosophy" (p. 475). In order to illustrate a distinction in axiomatic principles, and without attaching special importance to his illustrations, Reid says: "There are other first principles in which the predicate is not contained in the notion of the subject; as where we affirm that a thing which begins to exist must have a cause. Here the beginning of existence and causation are really different notions, nor does the first include the latter. Again, *when I affirm that the body which I see and feel really exists, existence is not included in the notion of the body.* I can have the notion of it as distinct when it is annihilated. . . . Existence is not included in the notion of anything."

Some terms defined. Existence. 2. Before proceeding further with this discussion, it may contribute to clearness of statement should we define our use of several terms. And first, as to that existence which we have distinguished as *attributive*. Nothing can add to the simplicity of this idea, or make it more intelligible than it is to every mind. But we may remark that though called attributive, this abstract existence has not a common nature with those attributes which are said to exist in existing subjects. These attributes are entities, which existence is not; and in predicating them, we presuppose both their existence and that of their subjects. Nevertheless, as existence, like an ordinary attribute, belongs to a subject, and may be predicated of it, this fact may be properly indicated by the term "attributive."

There are not two kinds or modes of attributive existence, but, as we shall see more fully hereafter, only one,—that is, real or actual existence. *Imaginary existence* is merely a figurative or secondary expression which states that we have the thought of the existence of some object which does not exist. *Potential existence* has nearly the same meaning; but it implies also that the object, though non-existent, may or can exist.

Entity. Another term to be defined is "entity." The difference between abstract, or attributive, and concrete existence has been already noticed. It is often desirable to express this difference by using two different names; and for this reason the term "entity" has been employed to signify concrete existence,— that is, *not existence, but that which exists;* while the term "existence" has been used exclusively to designate the being of any entity, as predicable of it. The word "entity" signifies the same as the word "thing" in the widest application of the latter term, according to which we speak of all things or existences. Not only substances, but spaces, times, powers, actions, changes, relations, are entities; for all these things exist. This distinction between the terms "entity" and "existence" is useful, and will be maintained in the remainder of our discussion.

Non-existence. Again, the term "non-existence" expresses an important notion. *This notion is as simple and underived as that of existence.* It is indicated by the relative name "non-existence" — signifying that which is not existence, or that which is diverse from existence — because the whole importance of non-existence lies in the fact of this diversity; while existence has importance *per se.* Were this not so, our method of naming these two things might be reversed.

In thus speaking of existence and non-existence as if they were *things*, or entities, we simply yield to necessity; language affords no other mode of expression. All other objects of thought than these two have that in them which is not existence but which exists, and are therefore things, or entities; these are *sui generis.* We cannot regard existence — much less non-existence — as an entity. Yet it is clear that *both of them may have an objectuality, and may therefore, in a certain qualified sense, be called objects;* for in a case of existence we can positively perceive and say that something is, and in a case of non-existence we can perceive, just as positively, that something is not, or that there is nothing. There are facts of existence, and there are facts of non-existence; and both of these equally may be the objects of knowledge, — for it is just as much a fact that there is no bread in the house, when that may be true, as that there is bread in the house, when that may be true.

Existence and non-existence, both as conceptions and as objects, are related to each other somewhat as emptiness and fulness, or presence and absence, are related to each other. Neither of them is derived from the other; each has a nature of its own. They are also mutually conflictive and contradictory; for a thing cannot be both existent and non-existent at the same time, and must be either the one or the other.

We may notice, in passing, the apparent absurdity of our language, according to which we often say that "a thing does not exist" and that "nothing exists." For example, the statements that "Gold does not exist in coral reefs," and that "No gold exists in coral reefs," seem to assert that *an entity does not exist*, and that *a non-entity does exist.* But the contradiction is only superficial; for *the negative particle*, though attached to the predicate of the first sentence and to the subject of the second, *in both cases really qualifies the whole statement.* It is used only once, because in each case it is necessarily understood to apply to both subject and predicate. The truth is more perfectly expressed in those languages which in such cases use two negatives, saying, "There is not no gold," or "No gold does not exist;" for, speaking explicitly, only entities can exist, and only non-entities can be non-existent.

Form, or schema.

"Form" is another term of which some slight use seems necessary in the present discussion. Let us mean by it anything viewed as to its whole entity, or content, or make-up, but without reference to its existence or non-existence. Let the form of any object signify all that is included in the object save its existence only. Some philosophers have used the term in this sense, but it has more frequently been employed in another signification; and it is important that the two meanings be distinguished.

Any object or entity (for example, an apple) may, with reference to its parts or attributes, be conceived of either definitely or indefinitely. In the first of these ways the peculiarities of the parts or attributes enter into our conception of the object, and so we think of it *as being what it is,* — that is, an apple; in the second we neglect its peculiar characteristics, and conceive of it *merely as a thing.* The content of an entity, or the entity itself, as thus definitely conceived of, has been called its form; while the same content as indefinitely conceived of, has been called its matter. This distinction arises, not from any difference in the nature of objects, but from a difference in our modes of conception; and according to it, the very same thing may be either form or matter, — form, when thought of definitely; and matter, when thought of indefinitely. And should we think of the same object at the same time in both ways, we should think of it as both matter and form; or should we definitely conceive of only some of the attributes or constituents of a thing, simply allowing for the rest as so much indiscriminate entity, we would regard the object as part matter and part form. Form, in the sense now explained, is always contrasted with matter; both are aspects of entity.

But, in the present discussion, form is not contrasted with matter; it stands for entity conceived of in any way, only without reference to its existence or non-existence; and the contrast is between the whole form, or nature, or constitution, or content of a thing (however conceived of), and its existence; in other words, between the whole thing and its existence. Now, as nothing is more obstructive to correct thinking than words with double meanings, we make bold, at this point, to propose an innovation in philosophic language. Let us call an entity, thought of without reference to its existence, *a schema,* and the conception thus entertained by the mind *a schematic conception*. The terms "schema" and "schematic" may not, in themselves, be any better than the terms "form" and "formal;" but they have, at least, a different sound. Those, of course, who hold that the notion of existence is an element in all thought, must deny that we can conceive of forms, or schemata, in the sense now described; but we are convinced that the mind sometimes uses such conceptions.

3. We are now ready for a detailed presentation of the doctrine that there are three ultimate modes of thinking, and that the human mind uses its conceptions *now in combination with the thought of existence, again in combination with the thought of non-existence, and yet again without the addition of either of these thoughts.*

Positive conceptions. First, then, it is not disputed that *the majority of our conceptions do contain the idea of existence* as a constituent element. This happens whenever we think of any of the contents of the actual universe as such; whether substances or powers, actions or changes, spaces or times, quantities or relations. These are thought of as having past, present, or future existence.

So, also, in positive conceptions unaccompanied by belief, the thought of attributal existence, united to some formal idea, gives to us the conception of "an existing thing" when no such thing exists. As we can have the idea of the horse Pegasus when there is nothing to correspond to it, so *we can have the idea of the existence of Pegasus although he never existed*, and we can combine these in one conception. In this way, without any belief, we think of the heathen gods—Mercury, for instance—as beings, or entities. Thoughts thus formed are said to be conceptions of ideal beings, or of beings in idea; by which language we signify that there is no true existence in the case, but only the idea of existence.

This thought of existence is also united, more or less loosely, to the conception of an object when we may be in a doubt, or have only a probable conviction, of the reality of something. For example, when one may be digging a well, the idea of water, until a spring may be struck, is not a sure conviction, but only a hope, a belief, of greater or less probability, formed out of the conception of water as existing.

Once more, we have conceptions of things as existing whenever we regard them as possible or as necessary. Thus we may think of space as a necessary existence, and of death as an event possible at any time. The ideas of possibility and of necessity always involve that of existence; for that only is necessary or possible which is necessary or possible to be. The thought of existence, therefore, enters into our conceptions of the actually existing, of the supposed or imagined, of the probable or doubtful, and of the necessary or the possible.

Here, however, we must remark that not even all these conceptions involve the "*affirmation*" of existence. It does not follow that all thought involves the affirmation of existence, because all thought is accompanied by the knowledge of its own existence. There is no affirmation of existence in the conception of the flying horse in the "Arabian Nights," though one may be sure that he entertains this conception.

Negative conceptions.

In the next place, we have ideas in which the thought of non-existence, instead of that of existence, is combined with our conceptions of the forms of entity. Let us suppose that a lambent flame is floating in the centre of the dome of St. Paul's Cathedral. In this case, of course, no flame exists, and there is no belief or affirmation of its existence. There is simply the conception of the flame and its existence; and this is connected with the thought of the cathedral. Let us now substitute for the foregoing another conception: let us suppose that *there is no flame floating in the dome.* What is the difference between these two suppositions? Simply this: In the positive conception the thought of existence is attached to that of the flame; while in the negative conception it is left out, and replaced by that of non-existence. In like manner, without any polytheistic belief, we might couple the idea of existence, and then that of non-existence, with the formal conception of a banquet of the immortal gods on the summit of Olympus; and we would do the one or the other according to the use that we might wish to make, in thought or fancy, of that celebrated mountain. But, in general, we may say that the use of negative conceptions is parallel with that of positive conceptions; so that the former, like the latter, may be met with in statements both of fact and of supposition, of probability, of necessity (that is, of impossibility), and of possibility.

Fontes solutionum.

Here, however, we must allow that the idea of non-existence, although having a nature of its own, is seldom or never used *save with some accompanying reference* to its diversity from existence; just as emptiness, when mentioned, suggests fulness. When one says that his purse is empty, or that there is no money in it, his words naturally excite a reference to another and more desirable state of affairs. But it is still true that in thinking of non-existing objects, we do not think of them as existing, or as if existing, even though we may not think of them without some reference to an existence which they have not in fact or in supposition. The reference to existence in such cases is no part of our negative conceptions, but only an accompaniment.

Neither does it conflict with the view now advocated that *negative conceptions are all necessarily derived from positive;* in other words, that our ideas of things as non-existent are all formed from our ideas of things as existent. This is involved in the doctrine already taught, — that all our thoughts originate in the perception of things actual. The only difference between a positive and a negative conception is that in the latter the idea of non-existence takes the place of the idea of existence in the former. Thus only we distinguish between "a flame of fire" and "no flame of fire." Even our most general negative conceptions are formed in this way. "None" comes from "no one;" "nothing" from "no thing;" "nemo" from "ne homo;" "nullus" from "ne ullus;" "*οὐδείς*" from "*οὐ εἷς*;" "non-entity" from "entity." What is common to both modes of conception is the schematic thought. For this thought, once secured, is retained and employed when the schema itself may have ceased to exist.

It is further to be allowed that our minds, *even while using conceptions negatively, tend also to use them positively.* Non-entities — that is, cases of non-existence — of themselves never affect us. No man ever sought or avoided emptiness for its own sake. All power and life reside in entities; and non-entities, as such, interest us, not because they *are* non-entities, but because they are *not* entities. Only for this reason do they become objects of either aversion or desire. Hence the tendency of the mind, especially when dwelling directly on any conception, to construe it positively. This may be accepted as an ultimate law of spiritual life; and it explains not only why we so frequently think of things that are not as though they were, but why, even while thinking of non-existences as such, we tend also to think of them as things at least that may be. Such thought, however, is distinguishable from the negative conceptions to which it is related.

Formal, or schematic, conceptions.

Finally, we seem in certain cases to think simply of the schemata of objects; that is, we think of objects without thinking of them either as existent or as non-existent. This mode of thought, it is to be acknowledged, is, for several reasons, difficult of deliberate realization. The endeavor to think two thoughts — the thought of the object (or form) and that of its existence — apart involves the necessity of thinking them both at once, so long as this endeavor may be intentionally continued. Such an attempt, however, may settle the question whether *we can clearly distinguish the two thoughts.*

If this be answered affirmatively, it is likely that we can think them separately.

Then that strong inclination, already mentioned, towards the exercise of positive thought militates against schematic even more than against negative conceptions, and causes the mind to strengthen the former with the idea of existence. Our schematic conceptions may be likened to those material elements which are seldom to be found save in combination with others, and which can be brought to view in separate existence only by special care. Language, also, increases our perplexity, because we have to use the same designations for objects, whether thought of with or without reference to their existence, — that is, for entities as such, and for the corresponding schemata.

Nevertheless, if we recall and examine certain modifications of thought in which conceptions merely formal are used, we may renew these conceptions, and may perhaps be able to distinguish them from those of entities and of non-entities, somewhat in the same way that *we distinguish the idea of man, viewed simply, from those of man as a citizen and as an alien, — that is, as being and as not being a member of some State.*

Schematic conception pertains to the nature of things simply, but not often separately exercised.

For example, when the previously unknown existence of some object is asserted of it, the logical subject seems to include the conception of the schema only. Respecting a known entity, we may interpret the expression, "This pen exists," as an analytical judgment; but when the existence is a matter of new information, and we say, "Eyeless fishes exist in the Mammoth Cave;" or, "There is a race of men with only one eye, situated in the centre of the forehead," our language seems to be ampliative, adding to the subject an existence not previously recognized as belonging to it. Or should we, in either of the above cases, assert, negatively, that such objects do not exist, we would be joining the idea of non-existence to the subject.

Moreover, when the mind is in doubt as to the existence or non-existence of things, is not this a hesitation as to the combination of either the idea of existence or that of non-existence with the conception of the schema in a statement of belief?

Again, schematic conceptions appear to be used whenever our consideration is exclusively directed to the nature or quality of an entity. For instance, when we contrast the nature of a thing with its existence, the conception of the nature may be regarded as schematic. When we are taught that God is, and is the rewarder of those that seek him, we are led to distinguish his being from his character, and to think, in the first instance at least, of the nature, rather than of the existence, of the latter.

In like manner purely attributive words may be said to express schematic thought. When we say, "The man is cowardly," "The rose is red," the adjectives indicate merely form or quality. This is yet more evident in such expressions as "the cowardly man," "the red rose;" for in these the thought of existence attaches itself primarily to the substantive, being needed only there.

Or should we compare two apples, both of which equally exist in all their parts and qualities, and say that they differ, the one being sweet and the other sour, we could scarcely be said to think of the *existence* of the sweetness and the sourness, — that is, so far as reference to these things is included in the thought of the difference, — because the apples differ not at all as to the existence, but only as to the schema, or nature, of their qualities.

Such is the doctrine of the three ultimate modes of thought. Some may find it difficult to see that we can think of the nature, or schema, of things separately from the thought of their existence or that of their non-existence. But if we can agree that there are at least *two* ultimate modes of thought, into the one of which the idea of existence, and into the other of which the idea of non-existence, enters, and which have a formal, or schematic, part in common, the principal end of this discussion shall have been attained.

CHAPTER XII.

IDEAL EXISTENCES.

1. THE doctrine of the objectivity of thought has sometimes been stated too strongly. It has been said that thought is the reflex or the correlative of being, and that every thought therefore has a being, or entity, as its object. In opposition to such teaching, we hold that *we have many thoughts which have no objects whatever to correspond to them.* There never were races of beings such as the dwarfish Lilliputians and the gigantic inhabitants of Brobdingnag. The wonderful stories of the "Arabian Nights" are mere conceptions to which no actualities ever corresponded. Novels, poems, dramas, are combinations which either refer but remotely to historical facts or have no such reference at all. Even in daily life the golden prospects of youthful fancy and the more sedate anticipations of mature days are always of that which never has been, and very frequently of that

which never comes to pass. It is clear that thought does not need the existence of an object apart from itself for its own existence, and that it often actually takes place without the presentation of any object whatever. The doctrine of objectivity implies only that thought in all cases *might* correspond with entity, not that it always does.

A difficulty in philosophy arising from the nature of thought.

At the same time it is to be noticed that human language seems to imply that often, when there are no objects of thought, thought provides objects of its own. We speak of *ideal existences*, *imaginary beings*, *fictitious scenes*, *supposed objects;* and, in connection with the ideas thus expressed, we employ the same names and make the same statements that we would regarding true and literal existences. We say that Falstaff was an old courtier, fat, witty, and unprincipled; that Othello, the Moor, was a dangerous, passionate man; that Hamlet had a very discreet madness; that Lear was a sad wreck of royalty. We express ourselves in this way while knowing that no Falstaff, Othello, Hamlet, or Lear, such as we think of, ever existed. Such language at first seems capable of easy explanation. It is quite common; and the thought conveyed by it is instantly understood. Yet philosophers, when asked to define exactly an imaginary object or an ideal entity, —that is, to state in literal language what we mean in speaking of Hamlet, the prince, or Lear, the king, — have found themselves at a loss.

It is certain that these objects and beings have no existence apart from the ideas of the mind, and also that if they exist in connection with our ideas, they must be those ideas themselves. We cannot recognize any other entities — that is, true and literal entities — in the case than our own thoughts or thinkings. The question, then, arises, Are these ideal existences to be identified with our ideas of them? This solution has authority in its favor; but there are difficulties in the way of accepting it. We believe that nothing exists in the case of an imaginary entity save the mental state or operation; yet we find it impossible to regard the ideal object and the mental state as the same. When one tries to believe, not that the thought of Hamlet, but that Hamlet himself, is or was an idea, the mind refuses to act. We say, "Hamlet had a discreet madness." Did an idea have the discreet madness? Could an idea be fat and unprincipled? Could it be a revengeful Moor or a crazed old king? It may be said that the ideal beings had such characteristics only in imagination. But this does not help the matter. Ideas cannot have such characteristics even in imagination.

The difficulty here is deep-seated: it lies in the very nature of our modes of thought. When we think of Hamlet as an ideal being, we do indeed have the idea of his existence as a man and a prince. This idea, unaccompanied by any belief, is a part of our conception of Hamlet. But in thus thinking of Hamlet, *we have no thought of the conception of Hamlet and of its existence.* This thought may accompany or follow the other, but is distinct from it. Moreover, the thought of the conception is always attended with belief, for the conception really exists; but the conception itself of Hamlet is not attended with belief. Those, therefore, who say that Hamlet, as an ideal existence, is the idea of Hamlet, or the idea "Hamlet," attempt to unite two incongruous conceptions. They try to identify that in connection with which we have the thought of existence (the belief being excluded) with that in connection with which we have the belief of its existence. Such an endeavor must terminate in failure.

We can indeed say that Hamlet is a conception of Shakspeare; but in such a sentence "Hamlet" does not signify the ideal existence, the Prince of Denmark. The word is used in a secondary sense; as when we say, "Theft is a bad idea," we mean that the idea of theft, not theft itself, is a bad idea.

Philosophy defines and discusses only realities.

In short, we hold that any philosophical definition of an ideal existence is an impossibility. When we ask what an ideal object is, we mean, With what can it be literally identified? This takes for granted that an ideal object can be, and is, an existing object. Hence the absurdity of the question, and the impossibility of an answer. Speaking soberly and philosophically, there are no such things as ideal objects and existences. They cannot be identified with anything, and it is vain to inquire what they are.

At the same time, when we speak and think of ideal things and beings,—of the heroes and events of poetry and romance,—our expressions and our ideas are actualities; and *philosophy may properly be called to explain this peculiar use of thoughts and words*, and the perplexity which we experience in its critical consideration.

Imagination is the power, the marvellous power, of the mind to think thoughts as if there were entities to correspond to them, even when there are no such entities. Though imaginative, or suppositive, thought differs from knowledge, or cognitive thought, as to pliability and permanency and motive force, and in the full normal working of the soul is especially distinguished by its want of any concomitant belief, yet, after all, *as thought* it is essentially of the same character with other thought. Suppositive is accompanied with cognitive thought when we are conscious of imagining; but this consciousness is not an element of the act of imagining. In suppositive thought we think an idea, — say Hamlet, — but we do not think *of* it at all. Imagination makes no subjective reference, but simply entertains thought so far as it might possibly correspond with objects. It endeavors to construct conceptions as nearly like those of cognition as possible, and succeeds admirably. These acts of the imagination affect us more or less in a way similar to that in which cognitions or remembrances affect us. The lifelike experiences of Robinson Crusoe, and even the incredible adventures of Baron Munchausen, move us in the same way, though not to the same degree, as if we knew them to be realities. Some explain this power of the imagination as the result of a momentary belief in the existence of objects corresponding to our thoughts, — a belief which Professor Stewart maintains always to occur, and to be corrected only by our more sober judgment. Probably the imagination itself, without the belief, has power to affect us; but, however it is to be accounted for, the fact that we are affected is beyond dispute.

Now *when, without any presentation of fact to our minds, we think the same thoughts and are moved in the same way as when we perceive or remember existing things, and then seek to express and communicate our thoughts, we naturally, spontaneously, use precisely the same language as that in which we utter cognitive ideas.* But the thought and the language thus employed are not the statement of facts, and do not concern existences; they are simply the exercise and the expression of the imagination. We think and speak in the same way as if we were thinking and speaking of things, and therefore *seem* to be thinking and speaking of things. Whole stories are formed and told after this manner. Yet, in sober truth, we are not thinking or speaking of things at all. Strictly and in fact we are not thinking of anything, for no object exists; we are only thinking.

If the foregoing account be correct, it is plain that our difficulties concerning hypothetical existences, ideal things, or imaginary beings *arise chiefly from our taking thought and language according to its primary use, when it should have been taken according to a secondary use;* in other words, from assuming, without reason, that things exist corresponding to imaginative thought and speech. We employ ideas and terms properly pertaining to real entities, — as when we speak of the little men and women in the land of the fairies, — while there are no entities of a kind corresponding to our thought. We have the names and the conceptions, — Macbeth, Hamlet, Lear, — while there are no such beings. Hence the expression that we think *of* ideal objects is not literally true. It is a metaphor, founded on the similarity of suppositive to cognitive thought. The fact, literally stated, is that we think *in the same way as if* we were thinking of objects. To say, "I think of Hamlet," means only, "I think as I would think if there were a Hamlet."

A puzzling combination of two kinds of thought.

This leads to the remark that imaginative thought and its expression are rendered doubly perplexing and delusive from the fact that we unite them intimately with cognitive thought and its expression. For example, should one say that he has been thinking of Hamlet and of Shakspeare, there would be a double meaning, not very easy to detect, in the expression "thinking of."

A similar conjunction of suppositive and of cognitive thought takes place when we say that such and such objects — the fairies, for instance — exist in imagination, but not in fact. The word "exist" here has a double sense, or rather a double meaning. It is taken suppositively in the affirmative, and cognitively in the negative, part of the sentence. This difference in use is indicated by the phrases "in imagination" and "in fact." The full import of the sentence is that the statement, "The fairies exist," is one of suppositive thought, and not of fact, or of cognitive thought. But this meaning is given by the use of *suppositive thought itself* in the affirmative clause, accompanied by an indication of its true character, and of *cognitive thought* in the negative clause, similarly accompanied. The expression "in fact," which shows the cognitive or assertive use of thought, is an emphatic repetition of the idea of existence, whereby we signify that it is used literally. To say that a thing *does not exist in fact* is simply to say that, speaking literally and truly, it does not exist.

Again, it seems plain language to say, "Hamlet is an ideal existence," or "Hamlet is one of Shakspeare's heroes." Yet these statements are compounded partly of suppositive and partly of actualistic thought. We say, "Hamlet is an existence," "Hamlet is a hero," suppositively; and then, in the first, we add actualistically the thought "ideal" to indicate, not the nature of any object, but the suppositive character of our thinking; and, in the second, we use Shakspeare's name in the same way, to show both the suppositive character and the authorship of our conception of Hamlet. Such is the only rational account of these and similar statements; to interpret them throughout as the language of fact, or of belief, involves absurdities.

Recapitulation. President Porter quoted.

2. We have now discussed the question of ideal objects or existences. Respecting this subject, President Porter says, "Scarcely any single topic has

been more vexed in ancient or mediæval philosophy;" adding that the controversy concerning it either includes or trenches upon almost every possible question in metaphysics. Many notable and fundamental errors have originated in connection with this topic, and can be fully understood and met only through a satisfactory understanding of it. The question, completely stated, may be presented as a dilemma: *Do ideal objects exist? If they do, what are they? If they do not, why do we call them existences, and speak of them as such?* We assert that they do not exist, and that we call them existences, and speak of them as such, while knowing that they do not exist; or, expressing ourselves more accurately, we use the same thought and the same language that we employ respecting existing things, while we know that there are no existing things to correspond with our thought and language. We therefore free ourselves from the question, What are they?

Then, when asked, How do we come to think and speak as if there were entities? we answer that the human soul has a native power and tendency to exercise itself in such thought and language. This imaginative — or better, imaginational — use of thought seems sometimes wholly to occupy the attention of the mind; but sometimes it is sensibly accompanied, and sometimes it is mingled and united, with actualistic thought. But it can always be distinguished from the latter.

Three principal causes have co-operated to mislead critical inquiry as to the prior question, Do ideal objects exist? and thus error and confusion have resulted through an affirmative answer. First, the difference between imaginative and cognitive thought, and especially *our power to conceive of existence and of existing things, or entities, without any attendant belief in their existence*, have not been fully recognized. Secondly, our imaginations often, if not always, *are accompanied with a delusive belief, or rather tendency to belief, in the existence of such objects as would correspond to them.* This tendency works unobstructed in dreaming. And, thirdly, suppositive ideas and expressions *are frequently so conjoined with those of knowledge or fact, that, finding ourselves thinking and speaking continuously, we lose sight of the diversity in our thought.* But the truth is that the language of the imagination, whatever it may seem to say or to imply, never expresses knowledge or assertion, but suppositive thought only. Such is to us a satisfactory account of the whole matter.

CHAPTER XIII.

BELIEF DEFINED.

1. WE name thought and belief the *primary* powers of intellect chiefly because the importance of those powers which we call *secondary* is that they modify the workings and results of thought and belief, while that of thought and belief lies in the very working and results of these powers themselves. The *analysis and synthesis* of ideas and of facts, the *association* of fancies and memories, the *abstraction and generalization* of notions and of truths, the *formation from a transitory process of a reproducible product* of conception or conviction, are all operations subsidiary to the main work of the intellect. The exercise of thought and belief is itself this work. Of these two, however, we may add that thought has a priority over belief; for it is possible to exercise the former without the latter, but belief takes place only in connection with thought.

Common language is not analytical.

Since belief is exercised only along with thought, the same word often covers the combined exercise of the two powers: such terms, for example, as "perception," "judgment," "inference," always signify such a combined exercise; while other terms, such as "belief" and "conviction," "apprehension" and "thought," which specially belong to the one power or to the other, through metonymical extensions or transitions, become positively ambiguous. The ensuing discussion will illustrate these remarks. Yet we believe that the common intellect of men does not at all confound these powers; it simply does not emphasize the distinction between them.

Thought and belief to be carefully distinguished.

In distinguishing thought and belief, as primary, from each other and from the secondary or subsidiary, powers of intellect, and in pointing out the dependence of belief on thought, we somewhat determine our conception of both these powers. In other words, we partly define each through an enumeration of characterizing relations, which is the only way in which any simple mental power can be defined. The difference between thought and belief should be noted, because, as we have said, the terms "belief" and "believing" stand often for a *combination* of thought and belief, and not for *belief simply.* We sometimes even use the noun "belief" to indicate, not belief itself, but *the form of thought which it may accompany;* for example, we speak of the religious beliefs of mankind, and we say that such a religious belief is entertained by such a person. This use of language exhibits the complete transition of a term from one conception to another nearly related.

More frequently words indicating belief have merely an expansion of significance, so that they cover the united exercise of both the primary powers of the intellect. As, when one says he *thinks* that such is the case, he intends to say that he *both thinks and believes* that such is the case, so we can scarcely deny that the statement, "*I believe* that such is the case," may mean that one *both thinks and believes* as stated. In like manner the assertion, "Lincoln cherished belief — or a belief — in the doctrine of Divine Providence," may easily mean that he cherished both a conception of the doctrine and a reliance upon it as true. Similar variations of signification might be observed in other words which express credence, such as "faith," "confidence," "trust."

Nevertheless, we hold that thought and belief are different things, and we would maintain this distinction even though these things were never distinguished and opposed in ordinary speech, and were separated only in philosophical analysis. *They are, however, often contrasted in the statements of common life.* For instance, were a man accused of theft without any evidence, men would allow that they had the thought of that evil action without any accompanying belief; and if proper proof were presented, they would agree that they not only understood the charge, but believed it. In this way the two things would be presented as clearly distinguishable.

Belief proper includes every degree of conviction.

2. Belief, as thus distinguished, might be called belief proper. It is that belief which is sometimes described as "the receiving, taking, accepting, or holding a thing as true:" that is, the *action* of the power of belief is thus styled; for in this, as in other similar cases, the power and its action go by the same name.

In the above statement the word "thing" does not signify the *fact*, which may be the object of thought, but only the conception of the fact; for not the fact, but only our conception of it, can be taken or accepted as true. This is said to be received and held by the mind, because, in exercising belief, we think the thought of the object with an increase of attention and interest and purpose. And yet even this grasping of a conception does not appear to be the essence of believing, but rather a characteristic result or accompaniment. The statement that the mind in credence *rests or reposes on a thing as true* is analogical also, and marks the intellectual act by that cessation from doubt and inquiry which follows the acceptance of a proposition as true. No figurative expression, however, can indicate exactly the conception of belief, or even convey this conception, to any one who may not be already possessed of it. It is a peculiar and simple thought.

Again, we remark that "belief," in the generic sense now contemplated, includes every degree of conviction, from the feeblest to the strongest. The merest presumption and the most absolute certainty are alike manifestations of this power. This is to be noticed, because when the degree, and not simply the nature, of intellectual confidence is prominent in our thought, the word "belief" frequently becomes limited in its application, and indicates a conviction not so strong as certainty, yet stronger than suspicion or presumption. Men say in regard to some statement that they believe it, perhaps firmly believe it, and yet are not perfectly certain of it; or, on the other hand, that they have a mere surmise or conjecture, and not a positive belief, concerning it. The various degrees of credence are indicated by such words as "presuming," "conjecturing," "guessing," "supposing," "trusting," "thinking," "believing," "apprehending," "seeing," "knowing," and the like; most of which terms, however, evidently cover more than mere intellectual confidence. Yet while the term "belief" expresses this moderate degree of conviction, it is also used for conviction in general; and these uses can easily be distinguished. The word "conviction" has nearly the same meaning as "belief;" but strictly it signifies belief regarded, not simply *per se*, but as produced by the contemplation of evidence, for which reason it is seldom used in cases in which the evidence may be very slight.

Belief and knowledge variously contrasted. An erroneous distinction.

At this point it may illustrate our subject, and clear away some perplexities, to consider three several distinctions which have been expressed by the opposition of the term "belief" to other terms, and principally to the term "knowledge." The first has just been suggested. According to it, *knowledge is the most perfect form of conviction, being both absolute and well-founded;* while *belief is a less assured confidence.* Knowledge of this description — such, for example, as that of one's own existence or of the existence of Queen Victoria — is closely allied to certainty; for when one is fully certain of a thing, no evidence can add to the strength of his conviction. We may, however, be certain on insufficient evidence, and then we do not know, but only think we know. We may be certain of what is not the fact, and such certainty is not knowledge. But when we have certainty, — that is, full and absolute belief, — and this certainty rests on good and sufficient evidence, then we have knowledge. Knowledge is simply *well-founded certainty;* and belief, as contrasted with this knowledge, is conviction of some degree falling short of certainty. Plainly, these two things are of the same radical nature; both are modes of belief in the generic sense. This is taught in the saying that "to see is to believe;" for to see is also to know.

According to the second distinction, no less than according to the first, knowledge and belief divide between them the sphere of conviction, or of belief in general. Indeed, the second distinction seems to have originated from the first; for because we are certain of things immediately perceived, while generally our belief is less confident respecting things learned through testimony or rational proof, *the conviction of immediate cognition, or that nearly immediate, has been called* KNOWLEDGE, *while that based on testimony, or on evidence not immediate or obtrusive, is called* BELIEF. This distinction is important, and clearly different from the one already mentioned. It is that which the Bible makes between faith and sight. It may be roughly expressed by saying that knowledge is immediate, and belief mediate, conviction. But it is to be noticed that the faith, or belief, of this second distinction may, through sufficient and well-considered evidence, become the knowledge of the first distinction, — in other words, perfect and well-grounded assurance. For if the evidence of a distant and unseen fact — as, for example, of the existence of Queen Victoria — be faultless, there is no reason why we should not be absolutely certain of it; and this is knowledge. In the exercise of such faith, the man of God can say, "I know that my Redeemer liveth."

Beside the foregoing distinctions, in which belief is contrasted with knowledge, there is another, *in which it is opposed to both thought and knowledge, and indeed to every accepted mode of mental activity.* It is a distinction advocated by those who follow the teachings of Kant concerning the limitations of the thinkable and the knowable. Hamilton, Mansel, and others hold that the human mind cannot even conceive of things infinite, and, consequently, that we can have no knowledge or belief, such as we have already considered, and such as we commonly exercise, concerning God. To make room for the possibility of religion, they assert that there is a feeling, or faith, or belief, different from knowledge and independent of all thought, by which in some way man apprehends or lays hold upon the Infinite. This conception of faith, or belief, is little more than a device for the purpose of escaping from the consequences of an erroneous doctrine.

It is not true that we cannot have correct ideas concerning God, and even concerning his Infinity. The thought of an infinite or unlimited entity is by no means an impossibility. We can conceive of some object admitting of quantity — space or time, for example — *as bounded;* and after that we can conceive of it *as not bounded*, replacing the positive by a negative characteristic. Ideas thus formed of things infinite especially occur in mathematics; and they are neither futile attempts at thought, nor yet mere negative conceptions, but *positive conceptions with negative characteristics.* It is true we cannot conceive of any infinite entity as being finite in those respects in which it is infinite; and therefore we cannot think of it as having various boundaries such as must always enter into our conceptions of finite objects. To attempt this may be natural for us, as it is in the line of our ordinary modes of thought, but it is a waste of effort. Endeavoring to imagine infinite space as a vast hollow sphere or firmament, bounded by a surface, we inevitably fail. But this is not a failure to form a conception of the infinite. We therefore reject this so-called belief, or faith, as a useless and worse than useless fiction. The adoption of it, without evidence, in order to escape difficulties which originate in error, can afford no lasting refuge from perplexity. Like that huge fish on which Sindbad the sailor built a fire, supposing himself on solid land, and which soon left him to buffet with the waves, this faith can only afford a temporary resting-place for distressed philosophers.

The essential point. 3. We now come to a very essential point in the philosophy of belief, — that is, of conviction in general. Although belief never exists save in connection with thought, and always has thought for its object, *it primarily attaches itself either to the one or the other of two thoughts, and to other ideas only as they may have one of these thoughts contained in, or conjoined with them.* These two cardinal notions are those of existence and of non-existence. Every statement of belief may be reduced to one of the formulas, "Such a thing is," and "Such a thing is not;" and all cases of doubt, or of inability to affirm or deny an understood proposition, arise from want of conviction as to the existence or the non-existence of something. We do not identify belief in the existence or non-existence of a thing with the thought of its existence or non-existence, but we say that we always believe in such a thought.

When we conceive of a thing as existing or as non-existing, and emphasize the notion of existence or of non-existence, the form of thought thus produced is a proposition, and may always be expressed by "Hoc est," or "Hoc non est." This *proposi-*

tional thought, *per se*, is merely enunciative; it *is not in any sense belief, but only the condition or preparation for belief.* In the exercise of it, we treat truth and falsehood very much alike. "The man is guilty" and "The man is not guilty" are equally complete propositions, though we may believe the one and disbelieve the other, or may have no conviction about either. But when, in the exercise of perception or judgment, we confide in, and rest upon, a propositional thought in its use as representative of things, this is the exercise of belief. Such a proposition then receives a new character: it is no longer a mere enunciation, it is an assertion; and this power of inwardly asserting a proposition — of mentally accepting, holding, and presenting it as a statement of reality — is the main characteristic of belief. It might be called the *assertivity of belief.*

It will be noticed that *thought merely enunciative is expressed in precisely the same forms of language as assertive thought*, just as an imaginary story is told in the same language as a real history. This, of course, gives no ground to dispute the distinction between enunciation and assertion. But it may sometimes be necessary to inquire whether one be making an assertion or merely stating a proposition.

Belief in things means belief in them as existing; *i. e.*, in the thought of them as existing.

It is also to be noticed that although we often speak of believing in *things*, — that is, in entities, — this is only a short way of saying that we believe in their *existence;* and this, again, as we have seen, is only an incomplete way of expressing our belief in the *thought* of their existence. For instance, in a dispute respecting the reputed wealth of some one, we might say that we believe in his wealth, or do not believe in it; and we might express ourselves in the same way as to the asserted guilt of a prisoner, or the alleged meaning of a law, or the claimed excellence of some mode of trial, or anything else in which one might be said to believe. Such language signifies our belief in the *existence* of the wealth, or guilt, or meaning, or excellence specified; and this belief is only belief in *the proposition that such wealth or other entity exists.* Thus it might be shown that no entity — that is, no conception of an entity — is ever an object of belief save only as it enters into a proposition or statement, and that propositions, statements, histories, and doctrines are objects of belief only because they continually set forth or enunciate the existence or the non-existence of things.

Belief in the truth or falsity of a thing.

Here, however, it may be asked, Do we not as frequently say that we believe a thing to be true or false as that we believe a thing to be or not to be; and if so, *is not belief in the truth or falsity of a* *thing just as radical a form of intellectual action as belief in its existence or non-existence?* For simplicity, let us chiefly consider belief in the existence of something; as belief in the non-existence of anything is, in itself, of precisely the same nature. Let us also take belief in the truth of any statement, positive or negative, to illustrate belief in its falsity; for the latter, which is often called disbelief, is simply belief in the contradictory opposite of a statement.

In regard, then, to the foregoing questions, we remark that our belief that a thing is true differs materially from our belief that a thing exists. The "thing" of the first belief is *a propositional thought* (named perhaps by metonymy from its object), and our belief is that this is true; for only propositions can be true or false. The "thing" of the other belief is not a proposition, but *the object about which the proposition is made;* and the belief is that this thing exists.

Such being the difference between these two descriptions of belief, we say that *the belief that a thing is true is a form of mental action conditioned upon, and secondary to, the belief that a thing is;* for before we can believe a proposition to be true, we must first believe that the thing or state of things set forth in the proposition is a reality. In other words, we must believe that a thing exists before we can believe that the statement that it exists is true. Sometimes we say that a statement is true, or correct, in order to call attention to its accuracy and excellence; more frequently we say that a statement is true, meaning thereby only that what it sets forth is fact. In this latter mode of assertion we simply employ one fact of existence to indicate another; that is, the fact of *the truth of the statement* is used to indicate *the existence of the thing* about which the statement is made.

This use of thought and language is evidently subsidiary to the more simple and direct statement of belief. It is also less radical; for it implies that we primarily believe in the existence of a thing, and is itself a complex example of that very belief in existence. For to believe in the truth of a statement is simply to believe in the *existence* of its truth. The truth of propositional thought is a relation of correspondence between it, on the one hand, and its objects, as existing, on the other; to believe in the truth of such thought, therefore, is to believe *both in the* EXISTENCE *of the objects of the thought and in the* EXISTENCE *of the correspondence between the thought and its objects.*

Thomas Aquinas quoted.

The correctness of the view now presented may be deduced from a definition of truth framed by the ablest of the schoolmen, and which, according to Sir

William Hamilton, is accepted by all philosophers. "Veritas intellectus," says Aquinas, "est adæquatio intellectus et rei, secundum quod intellectus dicit esse, quod est, vel non-esse, quod non est;" which may be rendered, "The truth of thought is a correspondence of thought and fact, according to which thought says that what is, is, or that what is not, is not." Here Aquinas teaches that a thought or proposition is true, and can be so regarded, only as correctly setting forth that something exists or does not exist. From this it follows that we must believe in the existence or in the non-existence of a thing before we can believe in the truth (or trueness) of the proposition that it is, or is not. And so we conclude, again, that the proper and primary object of belief is the proposition in which existence or non-existence is directly asserted, and not the truth of this proposition. The latter — or rather the propositional thought presenting it — is a secondary and subsidiary object of belief.

CHAPTER XIV.

THEORIES RESPECTING CONVICTION.

1. The word "belief" often indicates a degree of intellectual confidence which falls short of knowledge, and which yet is stronger than mere guesswork or presumption. We sometimes say that we believe, but that we do not know, that so and so is the case. But now we include under belief every act of the mind in which we take, accept, or hold a thing as true, whether we do this feebly or firmly, and whether we have good grounds for doing so or not. In this sense belief admits of many degrees, and varies from the merest presumption of possibility to the most perfect assurance of fact; and it includes knowledge, for knowledge is nothing else than absolute and well-founded certainty.

A wide use of the term "judgment."

Let us also make a wide use of the term "judgment." This ordinarily signifies the faculty of forming probable beliefs or convictions. Mr. Locke says: "The faculty which God has given to man to supply the want of clear and certain knowledge, where that cannot be had, is judgment, whereby the mind . . . takes any proposition to be true or false, without perceiving demonstrative evidence in the proofs." According to this meaning judgment, as the initial act of belief, must be distinguished from cognition, which is the initial act of knowledge. Let us, however, give the same extension to the term "judgment" that we have already given to the term "belief;" and in that case, of course, we must admit *cognition to be a kind of judgment in the same way that knowledge is a kind of belief.* This wide sense of the term "judgment" is very commonly employed by the philosophers and logicians of the present day.

By a natural metonymy the terms "belief" and "judgment" are applied to the operations and mental products of these powers, as well as to the powers themselves. We speak not only of belief and judgment, but also of beliefs and judgments, and of a judgment or a belief. This secondary use of language, which need cause us no confusion, should be granted the same extended application which we have asked for the more primary.

Because, in determining a probability, the reasons for doing so become more or less prominent in thought, judging generally means not simply the formation of belief, but the formation of belief on evidence. It will matter little for our present purpose whether this be included in our conception or not, although it is true that one believes always on some ground. In like manner the word "conviction," which signifies a belief necessitated by some evidence, may now be *used as simply synonymous with "belief."*

Every judgment may be expressed by a proposition.

2. Here also, as another preliminary, let us state a point on which philosophers are agreed. It is that every act of judgment or belief may be expressed by means of a proposition. This need not be argued as regards the convictions of the rational faculty; every one knows that these are expressed by propositions. And as concerns the cognitions of immediate perception, it can be easily shown that these, when analytically expressed, instantly assume the propositional form. This has been done by President Porter, who calls these presentational cognitions "primary, natural, and psychological judgments." For example, holding an orange and looking at it, one can say, "This object exists, and it is round and rough and yellow." Then, opening and tasting it, he can add, "This round, rough, yellow object is sweet and juicy." But these statements, expressive of one's immediate perceptions, are regular propositions, such as logicians describe.

The reason why sense-cognitions and rational convictions can both assume the propositional form, is that they have a community of nature. Both are judgments, in the wide sense of that term. Indeed, presentative knowledge is transformed into logical knowledge simply by analytical elaboration. The beliefs of memory, which are reproduced cognitions, may also, of course, be set forth in propositions.

Aristotle's "something of something."

3. The views of philosophers regarding the radical nature of our beliefs or convictions are given to us mostly in their doctrines concerning judgment, and concerning the proposition as the form which every judgment takes when fully expressed.

Aristotle[1] defines a proposition to be "a sentence which affirms or denies something of something." The most important word in this statement is the preposition "of," signifying the connection of one thing with another. The doctrine of Aristotle is that a judgment is the acceptance or the rejection, in our thought, of a union of things. Thus, in asserting, "The man is handsome," we accept a synthesis; but in asserting, "The man is not handsome," we reject one.

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[1] Prior Analytics, chap. i.

He inculcates this same doctrine when he says that "affirmation is the assertion of something *of, or concerning* (κατὰ), something, and denial the assertion of something *from, or away from* (ἀπὸ), something." And this is yet more especially taught when we are told, first, that "to be" and "not to be" (εἶναι and μὴ εἶναι) signify the truth and the falsehood (τὸ ἀληθὲς καὶ τὸ ψεῦδος) of the statements in which they are used, and then that these four predicables — existence, non-existence, truth, and falsehood — pertain to the conjunction and separation of things. "To be," he says, "is to be united and one; not to be is to be disunited and many." And he asserts that a proposition is true or false as setting forth things according or not according to their composition and division. Περὶ γὰρ σύνθεσιν καὶ διαίρεσίν ἐστι τὸ ψεῦδός τε καὶ τὸ ἀληθές.[1]

These teachings are the origin of the common doctrine that the copula — that is, the verb "to be" as the assertive part of propositions — does not have its own proper signification of existence, but indicates simply an agreement of ideas, or a connection of things; and that "not to be," in like manner, signifies a disconnection, or disagreement, between subject and predicate.

Locke's "agreement or disagreement" of ideas. Leibnitz.

4. A doctrine differing in form rather than in substance from that of Aristotle was introduced into modern philosophy through the writings of Locke and Leibnitz. "Truth," says Locke, "signifies nothing but the joining or separating of signs, as the things signified by them do agree or disagree with one another. The joining or separating of signs here meant is what, by another name, we call propositions. So that truth properly belongs only to propositions; whereof there are two sorts, mental and verbal, as there are two sorts of signs commonly made use of, namely, ideas and words." He tells us, also, that it is in the exercise of the faculties of knowledge and judgment that "the mind takes its ideas to agree or disagree, or, which is the same thing, any proposition to be true or false."[2] Thus Mr. Locke makes judgment a joining or separating of ideas according to their agreement or disagreement, while yet he teaches that this agreement or disagreement does not primarily belong to our ideas, but to "the things signified by them." He differs from Aristotle chiefly because that, instead of the wide relations of connection and separation which are indicated by κατὰ and ἀπὸ, he employs the more specific conceptions of agreement and disagreement. Both philosophers make judgment a composition or a division of ideas, in their use as representative of things.

Locke's statement has been adopted by most modern thinkers. First among these was Leibnitz, his great contemporary, who also gave it an important modification. Having repeated a teaching of Locke, that the agreement or disagreement of our ideas is of four different sorts, — namely, those of identity or diversity, those of relation, those of co-existence or connection, and those of real existence, — he observes that *relation*, the second of these categories (or generic classes), *if taken in a wide sense, may include them all.* He concludes, therefore, that all our knowledge is a perception of relations.

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[1] De Interpretatione, chaps. iii., v., vi., and x.; and Metaphysics, book iv. chap. vii., and book viii. chap. x.

[2] Essay, book ii. chap. xxxii. § 19, and book iv. chaps. i. and xiv.

He teaches, also, that some relations are those of *comparison*, — for example, those of identity, diversity, likeness, and unlikeness, — while others are those of *connection or co-existence;* and then he declares that *the most important of these relations of connection is that of real existence.* And he says that this existence, when predicated of an object, may be regarded as the conjunction of the object with one's self. "On peut aussi concevoir l'existence de l'objet d'une idée comme le concours de cet objet avec moi."[1] The main doctrine of Leibnitz reappears in the writings of Sir William Hamilton, President Porter, and others, *who teach that judgment is the faculty of perceiving relations,* and of uniting objects in thought by means of this perception.[2]

Reid. J. S. Mill. "A predicate of a subject."

5. The wonderful vitality of the Aristotelic doctrine of conviction may be seen in the preference given, by various leading authors since the time of Locke, to the ancient form of statement. Thomas Reid, the father of modern intuitionalism, having stated that "the definition commonly given of judgment by the more ancient writers in logic was, that it is an act of the mind whereby one thing is affirmed or denied of another," declares, "*I believe this is as good a definition of it as can be given.*" And John Stuart Mill, the associationalist apostle, says: "A proposition is a portion of discourse in which a predicate is affirmed or denied of a subject." This is the teaching also of Herbert Spencer.

One remark of Mill's is noticeable as betraying an unconscious dissatisfaction with the leading doctrine advocated by himself and by his school, — *the doctrine that belief may be accounted for by a strong or inseparable association of ideas.* He says: "To determine what it is that happens in the case of assent or dissent, besides putting two ideas together, is one of the most intricate of metaphysical problems."

Like Leibnitz and Locke, Mill gives a classification of things predicable. He says: "*Existence, co-existence, sequence, causation, and resemblance,* one or other of these is asserted or denied in every proposition without exception. He also offers a definition of existence similar to that of Leibnitz. "*The existence of a phenomenon is but another word for its being perceived, or for the inferred possibility of perceiving it.* My belief that the Emperor of China exists is simply my belief that if I were transported to the imperial palace, or some other locality in Pekin, I should see him. My belief that Julius Cæsar existed is my belief that I should have seen him if I had been present in the field of Pharsalia, or in the senate-house at Rome" In other words, according to Mr. Mill, when we assert existence of some object, we assert that it is related to us in that it is, or might be, perceived.[3]

Kant: "die Sinnlichkeit und die Vernunft."

6. Let us now turn to the opinions of Immanuel Kant, who laid the foundations for German idealism at Königsberg, while Reid was expounding intuitionalism in Glasgow. Kant's general term for conviction of every kind

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[1] Nouveaux Essais, liv. iv. chap. i.

[2] Hamilton's Met., lect. xx.; Porter's Human Intellect, part iii. chap. v.

[3] See Reid's Essays, Mill's Logic, and Spencer's Psychology.

and degree is "Erkenntniss," or cognition. This results from the application of the conceptions of the understanding ("Verstand") to the intuitions or representations ("Anshauungen") of the sensuous faculty. *These are not intuitions or representations in any English sense of the words*, for we are not to suppose that anything is really perceived or represented. They are rather mere felt appearances. Judgment ("Urtheilskraft") is the faculty which unites a plurality of intuitions into a unity under some concept ("Begriff") of the understanding, and so produces a cognition. Cognition, therefore, is the product of the synthetic action of thought and sensibility.

For example, should the sensuous faculty ("die Sinnlichkeit") give certain feelings indicative of size, solidity, and downward pressure, then the judgment, *using the categories of substance and of reality*, would assert, "This is a heavy body." But if such sense-intimations were not given, but only imagined, then the judgment, retaining the conception of substance, but *employing the category of possibility instead of that of existence*, would say, "There might be such a thing as a heavy body."

This may explain Kant's meaning when he condemns the doctrine that "a judgment is a representation of a relation between two ideas," and teaches that "a judgment is nothing else than the mode of bringing given cognitions to the objective unity of the consciousness," — that is, to that oneness of conception which conscious intelligence requires. Moreover, according to Kant, the categories, or concept-forms, of modality, — namely, possibility, reality, and necessity, — though they help to give unity to our cognitions, do not enlarge the conception of the object, "*but only express its relation to the faculty of cognition*" ("sondern nur das Verhältniss zum Erkenntnissvermögen ausdrücken"). In other words, like Leibnitz and Mill, he makes the existence of an object to consist in its being related to our faculties.[1]

The common error of philosophers respecting conviction.

7. We have now briefly stated the opinions of leading philosophers respecting the action of the mind in believing. First, Aristotle makes it *an affirming or denying something of something*; then Locke teaches that *it is the joining or separating of ideas according to their agreement or disagreement*. But these both hold that we judge of entities really separate and different from ourselves. Mr. Mill also says that the subject and predicate, which are employed in affirmation or denial, stand for things; his "things," however, prove to be nothing more than *mere feelings, or possibilities of feeling, which tend to unite or to separate by reason of some habit or association*. Finally, Kant, more directly, explains belief as a purely subjective synthesis, which gives us no reason to believe in things separate from, or beyond, the exercise of our own faculties. He calls certain "cognitions" *objective only because they follow a fixed order, and not the choice of our wills.*

The doctrine common to all these philosophers, and to many others represented by them, is that *conviction is essentially a process of the composition or division of mental states*; for even Kant, who speaks mostly of synthesis, would say that the judgment of disbelief involves the separation from one's thought of the category of reality.

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[1] Compare Lotze, Outlines of Metaphysic, § 10.

We reject these various teachings as erroneous and misleading. Only confusion can result if judgment be defined as the affirming or denying *one thing of another*; or as the recognition of *the agreement or disagreement of ideas*; or as the perception of *a relatedness or a non-relatedness between objects or between conceptions*; or as the effectuation of *some synthesis or some separation of mental or psychical states.*

Our reasons for this opinion might be given in the shape of objections to the foregoing theories. But, in the present instance, we think that the elucidation of the truth will be more profitable than the examination of error, and will prove the best possible refutation of the error. We shall content ourselves, therefore, with maintaining the position that *judgment is the mental assertion of the existence or of the non-existence of things.* This view is involved in the doctrine, already taught, that belief always attaches itself to one or other of the two thoughts of existence and non-existence.

The theory of judgment and belief, which we advocate, is so simple and evident that one wonders whether there can be any discussion over it; yet it has not hitherto been taught by philosophers, and it should not be accepted without consideration.

CHAPTER XV.

JUDGMENT.

Enunciation and assertion distinguished.

1. THE account commonly given of propositions overlooks the difference between a proposition merely thought, and a proposition believed. Logicians generally — for example, President Porter and President McCosh — teach that "a proposition is a *judgment expressed in words.*" This is not a satisfactory statement. It is a definition of propositions from the chief use we make of them, and not from their own nature. A proposition may be completely formed and enunciated without any judgment. We must distinguish between the enunciative and the assertive proposition. The former expresses thought, or conception, only; the latter, thought and belief also. *A proposition, simply as such, is merely enunciative.* At the beginning of every criminal trial the jury has two propositions in mind, — namely, "The man is guilty," and "The man is not guilty," — but neither of these is yet a matter of judgment or belief.

Dr. Reid calls our attention to this point. "A proposition," he says, "may be simply conceived, without judging of it; but when there is not only a conception of the proposition, but a mental affirmation or negation, an assent or dissent of the understanding, *that is judgment.*" Let us remember that we may think and state propositions without entertaining any belief respecting the matters which they may bring under our consideration.

Every proposition an existential thought.

2. Such being the case, the question arises, How does the doctrine that judgment is the assertion of existence or of non-existence agree with the admitted fact that every judgment may be expressed by means of a proposition? We reply that a very satisfactory proof of the new doctrine may be found in a right understanding of the essential force of propositions; because, on examination, we discover *every proposition* to be nothing else than the *explicit statement of an existential thought.* For we may divide propositions into two comprehensive classes, and may say that the function of one of these classes is to set forth the existence or the non-existence of the *subject-object* of the proposition, and that the function of the other class is to set forth the existence or the non-existence of the *predicate-object* of the proposition. In illustration of the first class we may say, "God exists," or "God does not exist;" because in these statements the subject is set forth as existing and as non-existent. The second class may be exemplified by the statements, "God is wise," "God is not selfish;" for in these we assert the existence of wisdom, and the non-existence of selfishness, in God.

The predication proper.

It is marvellous that *the distinction now presented is not to be found in any logical treatise, and cannot be expressed in the terminology of any text-book.* Both classes of propositions — those which assert the existence or the non-existence of the subject, and those which assert the existence or the non-existence of the predicate — are placed without discrimination under the head of predications. Let us note, however, that propositions of the second class have a better right than those in the first class to be styled predications; for it is only in them that we truly predicate *one thing of another.* The statements, "God is wise," "God is not selfish," may be described as an affirming and a denying one entity of another; for wisdom and selfishness are both things, or entities. But when we say, "God is," or "God is not," we do not predicate one thing of another; for existence and non-existence are not things: we only assert existence or non-existence of God. We might therefore distinguish propositions of the first class as *simple existential statements*, and say that those of the second class are *predications proper.*

Now, that every predication proper sets forth the existence or the non-existence of its predicate-object may be shown, because such a proposition *can always be converted,* by a little ingenuity, *into a direct existential statement.* For example, instead of the ordinary mode of expression, we can say that "Wisdom, as something in God, exists," and that "Selfishness, as a divine attribute, does not exist;" so, also, instead of "John walks," or "John is not walking," we can say "Walking as an action of John exists," or "does not exist."

The origin and use of predications proper.

But here some one may argue: If such be the essential significance of predications, *why do not men say just what they mean?* Why do they not always employ simple existential statements? We reply that the ordinary forms of speech do express just what men mean, and this, too, in the best possible manner. For sometimes we desire to say that something considered *per se*, or without reference to its connections with other things, exists or does not exist; and then we use the direct mode of statement. But, more frequently, we wish to assert the existence or the non-existence of something *as in relation to something else which is already known or assumed to exist;* in this case we find it convenient to mention first, and as the subject of the sentence, that which is already known to be, and then, in the predicate part of the proposition, to present that the existence of which is asserted or denied. For we must mark that *no predication proper ever asserts or denies the existence of its subject.* The statement, "John is not walking," does not assert the non-existence of John; nor does the statement, "John is walking," assert his existence. In each case John is assumed as a fact already known, and the assertion concerns only the walking as related to John.

The origin of the copulative verb.

Moreover, there is no inexplicable mystery in the circumstance that the copulative verb, though in immediate grammatical relation to the subject, sets forth the existence or the non-existence of the predicate. Primeval language appears to have had no term to express the abstract idea of existence. To indicate this thought, verbs signifying to begin, to grow, to breathe, to live, to stand, to remain, were employed, because such verbs specially directed attention to the existence of that which began, or grew, or breathed, or lived, or remained. Hence "existere," in Latin, meaning "to emerge," and γενέσθαι, in Greek, meaning "to be born," came to signify existence.

To this cause, also, we trace the various irregular parts of the verb "to be," both in our own and in other languages. The English "is" and "am," the Latin "sum" and "esse," and the Greek εἰμί and εἶναι, are identical with the Sanskrit "asmi," signifying originally "to breathe," and "the meanings of which were probably developed in the following order: breathe, live, be."[1] The German "bin" and "bist," the English "be" and "been," and the Latin "fui" and "futurus," are identical with φυέσθαι, signifying "to grow or spring up." "War" and "gewesen" in German, and "was" and "were" in English, are derived from a Sanskrit root ("was") meaning "to dwell or stay." When, therefore, our distant forefathers would assert the existence of some one, they said, "The man was born," or "The man dwells," or "The man shall breathe;" birth, dwelling, and breath being mentioned simply to indicate being. After a period of such use these verbs lost their original and proper force, and came to signify existence only.

But now it will be seen that *before these verbs lost their own peculiar meanings, they were fitted to indicate the existence of the predicate placed after them just as well as that of the subject placed before them.* For, in saying, "The tree stands strong; the tree grows high; the tree remains green," the adjectives "strong," "high," "green," are connected with the verbs after the manner of grammatical limitation, and the whole stress of the predication plainly falls on them. So, even to our ears, the expressions, "He lives righteous; he breathes happy," would assert the existence of the righteousness and of the happiness of some one; while "He breathes not happy; he lives not righteous," would indicate the non-existence of these things. Clearly the verb "to be," even in its secondary use as the copula in predications, is employed to signify existence and non-existence; and so it is put beyond question that the essential aim of every proposition is to express existential thought.

Judgment and belief defined.

3. Judgment and belief, therefore, are not a conjunction or a separation of our conceptions of things; they are an exercise of mental confidence in connection with the thoughts of existence and of non-existence.

Accordingly, we can conceive of things, both synthetically and analytically, without any exercise of belief respecting the things conceived of; we can entertain convictions concerning things viewed separately as well as when they may be considered with reference to their connections; and even when we do use the composition or the separation of thought in the expression of our belief, it cannot be said that the mental compounding of things is specially connected with affirmation, or that the mental partition of things is specially connected with denial. For a union of things may be non-existent and may be denied, and a separation of things may be existent and may be affirmed. We can even think of things as existing or as non-existent without believing in their existence or in their non-existence.

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[1] Curtius, Greek Etymology, § 378.

One wonders at the confusion affecting the doctrines of philosophers respecting judgment and conviction. We trace it to their failure to note the difference between thought and the belief which may or may not accompany thought, and to their attempt, consequent upon this want of discrimination, to explain belief and disbelief as a compounding and a dividing of conceptions.

4. But here some one may say: Granting that the fitness of propositions to express conviction arises from their constitution as forms of existential thought, and that some propositions set forth the existence or non-existence of the subject, while others set forth the existence or non-existence of the predicate, yet *in this latter class of statements, which have been distinguished as predications proper, is it not true that the thing immediately judged and asserted to be or not to be, is always and essentially a relation, — that is, the relation between the subject-object and the predicate-object of the proposition?* Evidently the doctrine thus suggested, while conceding the main points for which we have contended, would somewhat justify the teachings of those who say that all judgment and cognition consist in the perception of relations; for it would teach that the majority of our judgments may be thus described.

We cannot, however, accept this doctrine. We cannot allow that predications proper set forth only the existence or the non-existence of relations. Such sometimes is their force; more frequently they express belief in regard to things which are indeed related, yet which are not relations. When we say, "John walks, or is walking," we set forth, not the relation of the action to the agent, but the existence of the action. The relation is implicated in the fact of the action, but is not the point of the assertion. Aristotle teaches the true doctrine when he says that predication deals not with relations alone, but with "*whatever may be inherent or non-inherent in any subject:*" that is, predication sets forth whatever may or may not be naturally *conjoined in being* with any given entity; for spaces, times, quantities, qualities, powers, actions, changes, and combinations of these things are all, in this way, set forth as existent or as non-existent.

Relation only one of the categories of predication.

Let us illustrate this point by quoting and applying the teaching of Aristotle. "*The categories,*" he says, "*are ten in number, — what a thing is, quantity, quality, relation, where, when, position, possession, action, passion;*" and he adds that every proposition signifies either what a thing is, or some other category.[1] We accept this statement so far as regards predications proper. These categories seem to be an exhaustive classification of those modes of predicative conception which men naturally use.

The first sets forth *what a thing is*, and has also been named *οὐσία*, or substance. It is that employed when we predicate one noun of another, either affirmatively or negatively; for example, "John is, or is not, a man." It is the generic form of that large class of propositions which Locke and Leibnitz place under the head of *identity and diversity;* for the thing immediately asserted to be, or not to be, is identity, — that is, the identity of "John" with "a man." This, though not expressed by any word, is indicated by the juxtaposition of the terms "John" and "man," with only the verb "to be" between them; just as we indicate identity in saying, "John, a man whom I saw yesterday," or "John is the man whom I saw yesterday."

But it is essential to remark that this category does not use the relation of identity for its own sake; it employs it as the instrument of asserting or denying some nature of the subject. For John, being a man, must have all the attributes of a man; while if he is not a man, — if, for example, he is a horse, — he cannot be said to have them. Thus this category uses one fact in order to state another.

Again, when we say, "John is six feet high," we assert that a certain *quantity* of height, or length, exists in John. When we say, "John is kind and strong," we state that the *qualities* of kindness and strength exist in John. The predication, "John is the son of William," is, in form, one of identity, — a form under which every category may be expressed; but the essential fact set forth is a *relatedness* of John to William. "John is in a house," has a double force; it tells, first that there is a house, and then, that John is in it. Hence the category of *place*, sometimes at least, asserts more than mere local relation. "John will come at noon," in answer to the question "*When* will John come?" also has a doubleness; it calls attention, first, to a certain length of *time* about to exist and elapse between the present time and noon; and then to the relation of simultaneity which shall exist between John's coming and midday.

The categories of position and possession might perhaps be better named those of *posture* and *condition*. They also have a complexity. We assert a posture in saying, "John is sitting," or "John is resolved;" this language indicating a mutual adjustment of the parts of John's body or of the thoughts of his mind, and, in addition, the external relation of this adjustment; for one sits on some seat, and is resolved on some conduct. But a condition would be asserted in saying, "John is well," or "John is wealthy;" for this language indicates both the existence of health and wealth, and the state in which John finds himself as the possessor of one or other of these blessings. The category of posture sets forth the existence of an external state as arising from internal adjustments; that of condition the existence of an internal state, together with that of its cause, be the cause what it may.

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[1] Topics, book i. chap. ix.

Finally, "John strikes" sets forth the existence of an *action* in its relation to the *doer*, while "John is struck" presents the same in its relation to the *sufferer*. Thus affirmative predications assert the existence, and of course negative predications the non-existence, of various forms or modes of entity.

CHAPTER XVI.

KNOWLEDGE.

Knowledge defined. 1. KNOWLEDGE is absolute and well-founded belief. When we are certain of anything, and that, too, on good grounds, we know it. But the term "knowledge" differs from the term "belief," in that knowledge always covers the conception, or thought-element, on which conviction depends, as well as the conviction itself; while belief may stand for the mere mental confidence. Knowledge includes both a correct conception of something as existing (or as non-existent), and an absolute and well-grounded assurance accompanying that conception.

Its objects are facts. Language, too, owing to its practical character, makes a difference between the objects of knowledge and those of belief. The things which we believe, are statements or propositions; the things which we know, are facts or realities. The reason for this is that whenever we exercise a weaker belief than knowledge, our attention is necessarily directed to our mental state, with some inquiry as to its claim upon our confidence; but in knowledge, this question having been settled, the interest of the mind fastens at once upon the facts. Therefore it is correct to say, "I know the fact that there is a sun in the heavens, and I believe the proposition that the sun is a solid body."

Knowledge of the "that" and of the "what."

A distinction has come down to us from Aristotle between knowing that a thing is and knowing what it is; or, as he expressed it, between the knowledge of the "that" and the knowledge of the "what." Both modes of knowing may be expressed by the very same forms of thought and of language, — that is, by the assertive proposition. For if any one should say, "I know that the man is a knave," and should emphasize the word "is," he would answer the query, "Is the man a knave?" and would express his knowledge of the "that." But if he should emphasize the word "knave," he would reply to the question, "What is the man?" and would express his knowledge of the "what." Evidently both kinds of knowing assert the existence of something of a given nature; but the one emphasizes the existence, and the other the nature, of that which is said to exist. If no special emphasis should rest on either of these things, then the two kinds of knowing would combine in one.

Existential and definitional knowledge

The distinction which we have now noticed brings up another, which, however, is only another form of the same distinction. It is that between the existential, or assertive, and the definitional, or determinative, knowledge of things. All knowledge is existential and assertive, but one form of knowing is pre-eminently so. For instance, should one say that he knows the guilt or innocence, the foolishness or the trustworthiness, of a man, this would mean that he knows these things to exist; it would be a knowledge of the "that."

But let us suppose one to say, "I know the shape of the earth, the form of its planetary orbit, its distance from the sun, and the law of its perpetual motion in space." Does he now mean to assert that he knows of the *existence* of the shape of the earth and of the other objects? Not at all. He means to say that he is acquainted with their nature, so as to be able to satisfy our inquiries concerning them. For he can add, "I know the shape of the earth as that of an oblate spheroid, the form of its orbit as elliptical, its distance from the sun as ninety-one millions of miles, and the law of its motion as a resultant of the gravitation and the momentum of matter;" and this is equivalent to saying, "I know that the shape of the earth is an oblate spheroid," and so forth. In this style of knowledge the element of thought is much more prominent than the element of conviction; and as it qualifies a person to explain the nature of things, it may be called definitional knowledge.

2. So far we have spoken as if all knowing had actual fact for its object. But no doctrine of belief would be complete which

should not recognize those modes of credence in which we may be said to believe without believing in the real existence of things, and to know without there being any real objects of knowledge.

Idealistic knowledge. For example, we sometimes call our ideas knowledge when they do not represent any realities that ever existed, but only correspond with similar ideas previously entertained by some one. The student of Homer is said to know the stalwart strength of Ajax, the conquering craft of Ulysses, the wisdom of Nestor, the prowess of Achilles. He knows too how the capture of Helen led to the Trojan War, and how the Greeks entered and obtained possession of the city through the stratagem of the wooden horse. Or if one be not perfectly certain of some Homeric description, he may say that he *believes* that certain things were so; as, for example, that the shield of Achilles had on it the twelve signs of the zodiac in sculptured work. Strictly speaking, this knowledge or belief in things imaged or represented is not knowledge or belief at all. The only element of fact in the case is *the correspondence of our thought with previously existing thought*, — that is, with the conceptions of Homer; yet we do not speak of knowing this correspondence, but of *knowing the fictitious events and objects.* Such language is metaphorical. We call our conceptions knowledge, because they correspond to those of Homer in a manner somewhat similar to that in which true knowledge, by reason of its very nature, corresponds with our first perception of fact.

Hypothetical knowledge. Again, the formation of hypothetical judgments and assertions presents a very important case, in which we speak of knowing and believing facts and objects without this language being true, at least in its strict and primary sense. We often assert that if a certain antecedent exist, a certain consequent must exist also, and say that we know or believe this, even in cases where no antecedent exists, and in which, therefore, no consequent can be inferred to exist. Thus John Smith might say, "If I had $100,000,000, I would be richer than Astor," and we could reply, "That is a fact, Mr. Smith; that is true; we all *know* that." At the same time we perceive that there is no real antecedent, and therefore also no necessity of consequence (or co-existence), and no consequent at all. In truth, it belongs to the nature of every hypothetical assertion *to leave out belief as to actual existence.* Reality may characterize some part of the composition of the antecedent or of the consequent, but neither of these, as a whole, is asserted to exist. We only think and say that *if* the one exist, *then* the other *must* exist also. In the case adduced, Smith and Astor might both be living men, and other realities might be thought of; but neither the possession of the $100,000,000, nor the superiority to Astor in wealth, nor the necessary consequence of the latter on the former, is stated as a fact. Therefore hypothetical knowledge and belief, as such, deal not with real but only with conceived or supposed objects and their supposed existence. Yet the only true existence, the only true fact, is the actual.

At the same time it is clear that a large and important portion of our knowledge and belief is hypothetical. The chief part of every system of science and philosophy, and the great body of the practical wisdom of mankind, together with all thoughts or statements which are ever used as *principles* in reasoning, are not properly assertions of fact, but of that *which must be or become fact, provided certain specified conditions should exist.* Moreover, many statements are of this character which at first sight appear to assert general facts, but which, at least as to their use in reasoning, are not assertions of fact at all. Thus, in laying down the principle, "Books are pleasant companions," the existence of books and their pleasant company is referred to; but we assert only that *if* books exist, or wherever they *may* exist, they afford a pleasant fellowship. So, also, "Man is mortal" signifies, "Man, whenever or wherever he may exist, is mortal;" and this would be true even though there were not a single human being to be found.

The extensive use and the prominent importance of hypothetical belief, and the fact that logic, the science of rational conviction, is chiefly occupied with the laws which regulate the formation of hypothetical belief, account in part for the failure of philosophers to see that the expression of confidence in existence is the essential office and ultimate end of every form of intellectual assent.

The relation of hypothetical to actualistic conviction discussed. Hypothetical a mode of inferential belief.

That hypothetical conviction is a mode of confidence wholly secondary, subordinate, and ministerial to belief in actual fact, — that is, to belief which asserts actual fact, — and that its very essence is dependent upon its having this character, without which it would not be belief at all, becomes evident when we analyze hypothetical belief, and compare it with that form of belief in actual fact to which it is most closely allied.

That radical form of conviction which we have just mentioned as belief in actual fact, and which therefore might be termed actualistic belief, may be distinguished into two kinds, or classes, — the presentational and the inferential. The former of these is experienced in the presentations, or immediate perceptions, of sense and consciousness; while the latter is the inference of one fact from some other fact with which it is necessarily connected. Now hypothetical conviction is related immediately and closely to that form of actualistic belief which is inferential, and not to that which is presentational. This is so much the case that the same name, "inference," which describes the more primary and complete mode of confidence is also applied to the secondary and subordinate mode; and these two kinds of belief have so much a common nature that they may be distinguished and compared as actualistic inference and hypothetical inference.

By far the greater part of human knowledge and belief is included under one or other of these modes of inferential conviction. *Actualistic inference infers one literal fact from another, or from a combination of others.* We see smoke issuing from a chimney, and thence infer that there is fire within the house; or observing a library in a dwelling, we infer that the owner is fond of books. We find a field rectangular, and with one side ten rods in length and another twenty in length, and thence infer that there are two hundred square rods of surface in the field. Or we learn that one man, James, is younger than John, who again is younger than William, and thence conclude that James also is younger than William. Without any searching analysis it is plain that such reasonings infer fact from fact, and that the belief or knowledge resulting from them is a conviction as to actual existence. In the foregoing examples the actual existence of fire, of a fondness for books, of a certain quantity of surface as belonging to a certain field, and of the relation of juniority on the part of James to William, are inferentially asserted. *Hypothetical belief, on the other hand, asserts only that if one thing is so, then another thing is so.* We say only that if there is smoke, there is fire; or if there were a field answering a given description, it would contain a specified quantity of surface. Such being the case, the question arises, How far, or in what respects, does hypothetical inference agree in nature with actualistic inference, and how far does it differ?

No difference as to construction of thought.

First, then, it exhibits no difference, so far as the construction of thought employed in it is concerned. The sequence of conceptions in every inference is a peculiar one. It is the work of a special development of that power by reason of which one idea is associated with, and suggested by, another. In other words, it is the product of that faculty of suggestive conception which regards not the accidental but the necessary relations of things, and which, when acting in connection with judgment and the reasoning power, may be considered as included in those powers as their thought-factor. For, on thinking of certain things, the mind can, and continually does, think of other things related to them, and of these latter as in some way *so* related to the former that their existence is *necessarily connected* with the existence of the former; and while exercising this power of thought, the mind judges concerning the existence of the things conceived of as related in the way described.

The thing known, or assumed, to exist is called the antecedent; the thing inferred to exist is the consequent; and the necessary co-existence of the latter with the former is called the consequence. So far as these terms indicate order, it is the order of our thought in making an inference, and not an order belonging to the objects of thought as successive in time or as related in any other way. The consequent may precede or be contemporaneous with the antecedent; and the latter is as frequently an effect as it is a cause. The only essential point is that the existence of the consequent is in some way necessarily connected with that of the antecedent. The special relations which thus connect one thing with another are of great variety; but they all possess the characteristic of involving the necessary co-existence of the consequent with the antecedent. Examples may easily be found to illustrate these statements. We should add that sometimes there are negative antecedents, and sometimes negative consequents; because a case of existence is often necessarily connected with a case of non-existence, and the reverse, and because a case of non-existence is often consequent upon another case of non-existence.

No difference as to degrees of belief.

Again, let us remark, hypothetical inference does not essentially or necessarily differ from actualistic, as to the degree of belief which it produces. Actualistic inference, though always asserting fact, varies in its confidence from that of perfect knowledge to that of mere surmise or conjecture. Seeing fresh pools of water, we know that it has rained; seeing the clouds gathering, we conjecture that it may rain. It is sometimes taught that hypothetical inference, which never asserts fact, but only what would be fact if a certain other thing were fact, does not admit diverse degrees of confidence. This is erroneous. It is true we mostly assume absolute certainty in the grounds of a hypothetical inference, and therefore also assert the conclusion with absolute confidence; yet, should we *suppose* something to be probably, not certainly, a fact, and another something probably, not certainly, to be necessarily connected with this, such supposition would yield an inference purely hypothetical, and also only probable. Let us suppose that a certain piece of stone is probably amber, and then that amber is probably a vegetable product: this gives the hypothetical and probable inference that the stone in question is of vegetable origin. The absoluteness of conviction ascribed to hypothetical argument belongs to it only accidentally, and is assumed in order that discussions respecting the dependence of conclusions on premises may not be complicated with questions touching degrees of probability. But we can easily fashion for ourselves probable hypothetical inferences.

There is, therefore, no difference between actualistic and hypothetical inferences, *as to the construction of thought employed, or as to the degree of confidence produced by them.* Degrees of probability are more frequently considered in actualistic reasoning; and the consequence, or necessity of co-existence, is commonly more emphasized in hypothetical inference. In actualistic conclusions the interest of the mind tends to leave the consequence and gather upon the consequent. But these differences are not essential or necessary.

The true point of difference.

It is, however, a most important difference that, in actualistic inference, the antecedent is known or believed actually to exist, and that the consequence and consequent are therefore asserted actually to exist; while no such belief or assertion is found in hypothetical inference. This latter mode of conviction occurs without any belief in the actual existence of its objects, and simply in connection with a special exercise of thought; for the antecedent of a hypothetical inference is only *supposed* to exist, or *thought of* as existing, and the consequence and consequent are conceived of as existing without any belief in their actual existence.

A peculiar and undefinable mode of confidence. All belief in some sense concerns existence.

At the same time it is clear that a certain belief or confidence is exercised, in hypothetical inference, in connection with the conception of the consequence and consequent as existing. This belief is expressed by saying that the consequent *would exist;* and it is evident that hypothetical inference is as much distinguished by the presence of this mode of belief as it is by the absence of the other.

Here is the essential or internal difference between actualistic and hypothetical inferences, considered as modes of intellectual conviction. It lies in the difference of the modes of confidence with which they accept the same thought, — that is, the thought of the consequent and of its necessary co-existence. This difference is an ultimate fact in mental science. It reveals two kinds of belief or confidence, similar in nature, yet also radically diverse. For *hypothetical conviction cannot be explained as a special development of actualistic confidence: it is something* *simple, peculiar, and incapable of definition*, save through its relations, of which those to actualistic belief are the most important. It is distinguished from this latter belief by reason of its being founded on merely supposed antecedents; and it is also *provisional for, and preparatory to*, actualistic inference. For, so soon as belief in the reality of the antecedent takes the place of mere supposition, hypothetical conviction disappears, and is replaced by actualistic.

As all the interest and importance of hypothetical inference lies in its being ministerial to the inference of fact from fact, we see how subordinate it is to actualistic belief. Evidently, also, the whole doctrine of hypothetical conviction confirms the more primary doctrine of actualistic knowledge and belief, and proves that belief always, in some sense, concerns existence.

CHAPTER XVII.

EVIDENCE.

1. IN the primary sense, that only is knowledge or belief which is conviction concerning what is, or is held to be, actual fact. Whatever other mental states go under these names are so called because they partly partake of the nature of true knowledge or belief, or are preparations for its exercise. We have seen how the definition of actualistic belief, as confidence in actual existence, enables us to understand the nature of secondary forms of belief and knowledge, and especially that of hypothetical conviction; this last being closely related to the inferential form of actualistic belief. We have now further to remark that *a statement of the causes of actualistic belief will prepare us to understand the origin of every mode of belief and knowledge.*

Since even those secondary mental states which are called belief and knowledge, without strictly being so, presuppose belief as to actuality, and that knowledge of fact which all belief strives to be, realities may be considered the first condition of all knowledge and belief whatever; they certainly are the immediate condition of all true knowledge.

The efficient cause of belief is wholly in the mind.

But the existence of objects, though a condition of belief, exerts no efficiency in the production of it; nor, indeed, can belief be accounted for by any potency outside of the mind. The producing cause lies wholly within; and it may be regarded as partly remote and partly immediate. The remote cause lies in the constitution of the soul as having innate and immanent powers of perception and of judgment; the immediate is the action of these powers.

The special nature of a power is shown only in its action or operation; and that of the action only in the phenomena — that is, the changes and states — immediately produced by it. For this reason, as we have already considered belief as a phenomenon, we have therein considered it also as a specific power and as a specific operation. We need not discuss further the efficiency producing belief.

Evidence is the conditional cause of conviction.

But a condition devoid of efficiency is sometimes called a cause, when, not being involved in our conception of a phenomenon, it is regarded as the chief or only condition needful for its occurrence. Many other conditions may be as necessary to the event as that thus signalized; but they are regarded as already existing or as already secured, and so as no longer needful to be supplied. Thus the insufficiency of water might be assigned as the cause of the explosion of a boiler, though such insufficiency in itself has no power, and only leaves the way open for the excessive generation of steam. In such cases the efficient cause is supposed already to exist, and to be in readiness to act; the idea of it may be involved in the very conception of the phenomenon; and the thought of the mind is principally directed to that condition, on the supply of which the effect takes place. In this way we come to regard a mere condition as if it exercised the power producing some result, when really it is only the occasion, or, at the most, the excitant, of the efficiency. Now such generally seems to be our use of language when we speak of the cause or causes of conviction, and when we define "evidence" as that which naturally produces conviction. Blackstone says: "Evidence signifies that which demonstrates, makes clear, or ascertains the truth of the very fact, or point at issue, either on the one side or on the other." Strictly speaking, evidence has no efficiency, and is only the special condition, on the occurrence of which conviction takes place. This being understood, *evidence may be defined as that which is immediately productive of belief.*

Probable evidence.

The words of Blackstone might be taken to mean that nothing is evidence which does not remove all doubt as to the point at issue. But this is not intended. Evidence includes all that may be the ground of rational conviction as to alleged fact, whether the conviction produced be absolute and certain or merely probable. Whatever exists, exists certainly, and may be the object of absolute knowledge, and hence also may be perceived through that certain or perfect evidence which is the cause of such knowledge. But often, not from any difference in the degree of the reality of things, since whatever is real is perfectly real, but from something lacking in our means of knowing, we have to be content with evidence which is fit only to produce probable conviction. Frequently, too, we have to act upon such evidence. Now that which is partial or imperfect can be understood only by reference to the complete or perfect; therefore let us first study the nature of certain evidence, and after that we may consider probable evidence.

The word "fact" defined.

The word "fact" is commonly used to signify the actual existence, or non-existence, of anything considered as assertible of that thing. *Factum* originally meant "that which has been done or made;" but as an accomplished result is a real thing, which it is not so long as it is merely purposed or contemplated, and since the question, Has the thing been effected? chiefly asks, Does it, as a result, exist? the term "fact" came to be applied to *that which has an actual existence*, whether it be the product of some agency or not. We say it is a fact that there is a moon, and another fact that there are mountains in the moon; and in this we set forth simply the existence of the moon and of the mountains in it. The essential point in every fact — that which makes it a fact — is the existence, and not the nature, of the object, although of course no object could exist without having a definite nature. Whenever anything exists, its existence is a fact, no matter what the thing may be. In like manner, when anything does not exist, we extend the term, and call the non-existence of it a fact. In short, this word signifies that which corresponds to, and is the object of, any proposition which is literally true. It may therefore be employed to designate the object of literal knowledge, — that is, of certain and well-founded belief as to the actual existence of things.

The evidence of fact is of two kinds. Perception or cognition defined.

Now this knowledge — this absolute and correct actualistic belief, the knowledge of literal fact — seems to arise from the connection of the soul, as a thinking substance, with the fact; and this connection is either immediate or mediate. In the former case the fact is either included in the life of the soul, or, if we may so speak, exists in contact with that life. In the latter case the fact is perceived, not directly, but through the knowledge of another fact with which it is necessarily co-existent. These two modes of knowing may be distinguished as presentational and as inferential perception. Both are forms of judgment, when this latter term is used in the widest sense, covering every mode of forming convictions, and not in its stricter meaning, which includes only probable inference. Perception, in the broad signification now employed, is precisely the equivalent of cognition; so that, in actualistic belief, there are two kinds of judgments, — first, perception or cognition, by which we perceive or cognize fact, either in itself or through other fact, and thus have knowledge; and secondly, judgment proper, which is the probable inference of fact from fact, and which originates belief proper, or probable conviction. With the latter we have nothing to do at present.

Presentative and illative evidence.

The evidence, in any case of presentational perception, is simply the fact itself, considered, of course, as immediately subject to the cognizance of the thinking being. Hence we say that the fact is self-evident. If one has a thought or a pain or a desire, what evidence has he of its existence save that it exists within the sphere of his immediate consciousness and notice? The fact as thus related is its own evidence; nor can we conceive of any other cause of immediate knowledge than the fact itself as immediately related to our power of cognition.

On the other hand, the evidence in inferential perception is not the fact perceived, but some other fact or facts with which it is necessarily co-existent. Seeing a bird flying over a grove suddenly collapse and fall immediately upon the report of a fowling-piece, we perceive that some unseen sportsman is successfully practising his art.

Comparing these two kinds of evidence together, we may name the first *presentative*, because, in a sense, it presents the existing object immediately to our perception. "Intuitional" might be a better term, had not "intuition" of late come to mean, not the immediate perception of fact, but only the immediate apprehension of necessitudinal, or ontological, relations and sequences. And the second kind of evidence may be named *illative*, because in a sense it brings the existence of an object not immediately cognizable within the compass of our perception.

Presentative evidence is originative, illative evidence is applicative, of thought.

This radical distinction, which refers to the use or non-use of means in cognition, is allied to, and coincident with, two other distinctions. First, with reference to the thought, or the conceptions, of the mind, presentative evidence may be called *originative*, because our ideas of the things perceived originate in the very perception of them; while illative evidence may be termed *applicative*, since it merely enables us, according to certain rational methods, to apply conceptions or propositions which have been recalled to, or constructed by, the mind, out of its acquired stores, to the explanation of any given case. If one has toothache, the idea of that pain is given in the very perception of it, whether it be a first or a subsequent perception; the evidence in this case is presentative of the toothache, and originative of the thought of the toothache. But when, without examination of the tooth, *we infer that there is a decayed nerve from which the aching proceeds*, the conceptions of this inference must have been derived from a previous examination of aching teeth. In this case the evidence is applicative of the conception of a decayed nerve, and is illative of the fact of such a nerve. So when we see the bird falling, and hear the report of the fowling-piece, we have presentative and originative evidence of the fall of the bird and the noise of the gun; but, supposing the sportsman to be out of sight, we have only illative and applicative evidence of his presence and skill.

Presentative evidence is primordial, illative evidence is logical, in its mode of conviction.

Secondly, with reference to the ground of our belief, presentative evidence may be called *primordial*, because it is the immediate fountain of our primary perceptions, and the ultimate source from which every actualistic conviction draws its life or validity; while illative evidence may be termed *logical*, because it is employed in reasoning, and is the means of deducing secondary from primary convictions. Possibly the truth thus indicated might be better stated should we first say that certain of our cognitions are primordial, not being dependent on any others, but being themselves the source whence all others are derived, while the rest of our convictions are logical or derivative; and should we then say that the evidence of our primordial cognitions may be distinguished as primordial, while that of our logical beliefs may be distinguished as logical.

Primordial evidence is merely the fact or thing known considered as in immediate connection with the thinking substance; *it is presentative evidence, viewed, however, not simply in itself, but also as the foundation for illative evidence.* Logical evidence consists either in primordial convictions so used as to derive other convictions from them, or in derivative convictions so used as to become in their turn the source of new convictions: *it is illative evidence, viewed not simply as to its effect but also as to the nature and ground of its operation.* To explain the modes and laws of derivative conviction is the chief office of logic.

To illustrate logical evidence let us suppose that one sees money put into a pocket-book, and then sees the pocket-book put into a desk. He now has presentative and primordial evidence as to the relation of the money to the pocket-book and as to the relation of the pocket-book to the desk, while his knowledge of these facts is the illative and logical evidence *that the money is in the desk.* Again, to enable one to conclude that a certain cupful of black powder is explosive, let one have observed several times that a certain pulverized composition of sulphur, saltpetre, and charcoal, called gunpowder, will explode; and let him know, from examination, that this powder in hand is gunpowder: he has now presentative evidence of these facts, or at least a remembrance in which the result of that evidence is reproduced; for he has observed the facts themselves. And he has logical evidence that the powder in the cup, which has not yet exploded, will explode if ignited, or is explosive, because the facts already observed, considered in their relation to this derivative conviction, are logical evidence. In the above instances the knowledge employed as logical evidence is itself supported by primordial evidence; but any knowledge, whether obtained by observation or by inference, may serve as logical evidence.

The relation between presentative and illative evidence definitely stated.

The doctrine that presentative evidence, or presentational cognition, is primordial to all our convictions, and originative of all the conceptions used in them, cannot be fully vindicated without discussing thoroughly the various modes of conviction. It can, however, be defined without further discussion. First, in saying that immediate perception is the origin of all thought, we mean only that *presentation furnishes all the materials or elements of conception.* We admit that new constructions of thought not only take place in connection with inference, but are a condition of it. When we say, "The powder in that cup is explosive," we unite the idea of explosiveness to that of this cupful of powder; and this combination is new, though we had the elements of it before making it. So also there is a new synthesis of thought when we conclude that the money is in the desk, that the bird which has fallen has been shot by the unseen sportsman, and that the aching proceeds from decay in this hollow molar.

The question, however, may be asked, Is it absolutely true that the mind originates no elements of conception in inference? For example, might not the thought of the necessary connection of the fact inferred with the facts already known be immediately produced by the intellect on the occasion of its first inferences? To this we reply that were there any necessity for it, we might suppose the mind to have the power to conceive not only of the necessary connections, but also of the radical natures of the things inferred, without having directly perceived such natures in such connections previously. There are certain fundamental elements of conception, which correspond with certain fundamental elements of entity, and which enter into all thinking; and we might attribute to the mind a power of generating these elementary conceptions at the time of its first inferences. But we can discover no need for such a theory so far, at least, as regards the human spirit. It seems sufficient to say that these conceptions are primarily produced as parts of our presentational cognitions. The doctrine appears sustainable, that every element of inferential thought has been originally experienced in immediate perception.

Secondly, in saying that our presentational perceptions are primordial as related to our illative actualistic convictions, we do not mean to say that inference has not a force of its own, in addition to that of immediate cognition, or to that which memory may reproduce from such cognition. *On the contrary, it has such a force; and this must be recognized as an ultimate fact in mental science.* When a chain hangs from a hook fastened in a beam, there is strength in each link of the chain as well as in the hook. When a column rests on a pedestal and upholds a roof, there is supporting power in the column as well as in the pedestal. So actualistic inferential conviction, though founded on presentational, has a confidence that is peculiarly its own. That such is the case is evident from the fact that *illation, or inference, produces new convictions.* We form beliefs about things in the future or in the distance, and about whose existence we never heard before. Such beliefs cannot be explained as merely the reproduction of old perceptions.

CHAPTER XVIII.

PRESENTATIONALISM.

Diversity of views. Causes of error.

1. THE operation of presentative evidence is very simple. There is no process. The object as existing in, or in immediate relation to, the experience of the soul, is immediately perceived — that is, absolutely and correctly judged to exist — either as a part of the experience or as related to it. That which is simple does not call for explanation; but the question arises, *What facts, or classes of fact, are*

immediately perceived by us? and philosophers have not been agreed in rendering an answer.

Specific views stated and advocated.

They concur only in teaching that the soul has an immediate knowledge of its own operations and experiences, — that the consciousness of psychical life is presentational; beyond this there is no general accord. The following views, however, respecting points of discussion, commend themselves.

Psychical life presentatively known. Also the soul, or *ego*, and its powers.

In the first place, we have presentative evidence as to the existence of the powers of the soul and also as to the existence of the *ego*, or thinking substance, to which these powers belong. In other words, a man is conscious of his own existence and of that of his powers in the same manner that he is conscious of his spiritual activities. The truth is that action, potency, and agent are all perceived at once, and in the one exercise of consciousness. The doctrine that our first knowledge of the faculties of the soul, and of the soul itself, is a kind of inference from the operation of the faculties, only this last being immediately perceived, has originated from the fact that the *ego* and its powers are perceived on the occasion of the exercise of the powers, and not at any other time; but this shows merely that psychical change is always the excitant, not that it is ever the medium, of the perceptions of consciousness.

We might account for the cognition of the *ego* by giving the mind a wonderful ability to conceive something such as it has never perceived, and to conceive also a necessary connection of this something with another something which *is* perceived, and in addition to this, the power to infer the existence of the former something from that of the latter, — that is, to infer the agent or his power from the action with which they both necessarily coexist. This doctrine is not unintelligible; nor can it be condemned as far from the truth. But the more satisfactory view is that the mind forms its conceptions of substance and power in the very act of perceiving these things and from immediate contact with them in their operation, and not that it first imagines them as things not directly known or seen, and after that judges them to exist. As will become plainer in the course of this discussion, *it is more natural to hold that, originally and ordinarily, we perceive that we have souls and powers operating, than to say that we infer that we must have souls and powers because they operate.* We do not deny that such an inference may be made, for we might infer wherever there is a necessary connection; but in our view, such is not our original nor even our ordinary mode of cognition.

We have presentative knowledge of our bodies, and of such matter as immediately affects the nerves.

Again, we have presentative evidence of the existence of matter and its qualities, — that is, of the matter of our own bodies, and of such other matter as may come into immediate contact with our nervous system; for it is now agreed that the rest of the universe is known only inferentially. Sir William Hamilton has discussed this point at length. He divides those philosophers who accept the reality of matter into two classes, — the one the "Natural Realists," who hold to an immediate perception, "founding their doctrine on the natural consciousness or common sense of men;" and the other the "Hypothetical Realists," who hold to an inferential perception, in which the mind, on the occasion of its sensation, forms conceptions of matter and its qualities, and then believes in the existence of these things because of their necessary connection with sensation as its cause.

As the word "natural" is not precise, and as "hypothetical" might suggest the idea of a mere hypothesis held without evidence, — an imputation rejected by the class of thinkers named, — it might be better to say *presentational and inferential realists*, than *natural and hypothetical.* It should be noticed that the term "realism" here is used in a sense different from that which belongs to it historically, and which concerns, not perceptions, but abstract and general notions.

Comparing these two forms of doctrine — presentational and inferential realism — with each other, we find that *they do not materially differ as to the producing cause of our conceptions of matter and its powers.* Both teach that our idea of matter as an external and extended something endowed with certain attributes arises wholly from the mind's own power of thought, and is not at all impressed upon us from without. Neither explains the mystery, the simple ultimate fact, of the origination of thought.

Again, *each doctrine in its own way provides for a belief in the external world.* The inferential realist says that on the occasion of a sensation, by a necessity of our mental constitution, we conceive of a certain external cause, acting under certain conditions, as necessarily connected with the sensation, and that, the sensation being perceived to exist, we necessarily infer the existence of the cause. To him the sensation is the proof or sign of the cause, and he rejects other evidence as needless. Such a doctrine is not absurd; for illative evidence is possible whenever one thing can be conceived of as necessarily connected with another. But the presentationalist may reply that it is more philosophical to regard our first perception of the correlatives, matter and sensation, as presentative and originative, and to hold that the inference of body and its attributes from sensations, if it takes place at all, only takes place afterwards, and obtains its conceptions from the analysis of presentational knowledge.

Further, *we cannot see that the doctrines in question differ as to that absolute certainty which each provides as belonging to our perception of matter and its powers.* When we are certain of the connection of some consequent with some antecedent, then we may be as sure that the consequent exists as that the antecedent does; this is the confidence of the inferential realist. On the other hand, nothing can be more absolute than the certainty of immediate cognition, which is claimed by the presentational realist.

Finally, *we can scarcely say that one of these theories is more "natural" than the other*, meaning by this that it is more agreeable to the ordinary consciousness of men. Although our perception of the parts of the bodily organism, and of such material agents as may directly affect them, seems immediate, so also does our perception of distant objects, which is confessedly inferential, — for example, the sight of a tree or of a house. Indeed, not all one's perceptions respecting his own person are presentative. "Natural," therefore, no less than "hypothetical," is a term unduly suggestive.

Points of difference. Favor presentational realism.

The true point of difference between presentational and inferential realism is that the former makes the sensation, the sensation itself, the occasion on which the mind perceives, at once and together, the sensation and all the causal and conditional entities immediately connected with it, such as matter and its powers, and their action, and the time and place of their operation, — the conception of these things being of course included in the perception of them; whereas inferential realism makes the sensation the occasion only of the perception of the sensation, and then makes this perception the occasion of the conception and of the inference of the other entities.

Of these two theories the former, presentational realism, is the preferable. In the first place, *it is the simpler.* It concedes but one mode of originative perception, the presentative, and so also makes all illative perception purely applicative; that is, it agrees with the doctrine that presentational perception alone originates the conceptions of the objects perceived, and that illative perception makes use of conceptions previously acquired and possessed, and in some way suggested or recalled. But inferential realism makes two modes of originative perception, the one presentative and the other illative, and so also two modes of illative perception, the originative and the applicative.

In the next place, *the actual presence of the soul at and throughout the place of a bodily feeling*, which presence is now generally conceded as an immediate cognition, — that is, the object of an immediate cognition, —*furnishes the only condition of the immediate perception of matter and its operation which seems necessary to be supplied.* The sensation, though within the spirit, may be regarded as occupying the place where the soul and the animal organism as affecting it meet each other, — the place of contact between the *ego* and the *non-ego* in any sensation. If this be so, may not the spirit, in the place of the feeling, immediately, and in the same one act, perceive both the sensation and itself, the subject of the sensation, and the extended organism, the cause of it? Moreover, as to the place, the time, and the various intimate relations of the things perceived, it is as easy to regard them as immediately known, — that is, at once conceived of and believed in. — as to suppose them first conceived of in connection with the thought of the sensation and its causes, and thereupon inferred to exist because of the existence of these correlatives.

Finally, the doctrine of inferential realism *is somewhat connected with erroneous views, the rejection of which leaves it without any strong support.* The idea that spirit is so related to space that it cannot pervade the body has just been noticed as an exploded theory. Again, it is no longer taught that the human intellect is capable of only one thought at once; on the contrary, the mind is allowed considerable compass of conception. We may regard the perception of matter and its powers, and of the conditions of its existence and operation, not to follow, but to accompany, that of sensation. Moreover, the view that the different parts of a complex *phenomenon, because separately conceivable, have an existence separable from each other, and can be perceived separately*, is merely a philosophical fiction. The fact is, in original perception we perceive, not the feeling merely, but the *ego* as having it; not sensible affections and changes merely, but matter as having them; never time and space alone, but things and events as existing in them and conditioned upon them. Our subsequent and independent conceptions of these things are the abstractions of mental analysis. Such being the case, we may reasonably hold that things which exist together, and all of which equally are immediately related to the mind, may all be perceived immediately and in the same mental movement.

Certain relations and *relata* of the *ego* and of the *non-ego* are presentatively perceived.

2. *Ordinary language speaks only of material things, with their qualities and changes, as the objects of sense-perception;* that is, only such things are said to be seen, heard, touched, tasted, and so on. In like manner, *only our souls and their powers and operations are mentioned as the objects of internal perception*, or consciousness. The reason is that language is founded on an analysis, and is not designed or fitted to express at once all of a complex of phenomena, but only that portion which may be important to notice. Very often we desire to know whether or not some object has been perceived, and we have no need or no desire to ask, Where or when has it been perceived? Indeed, the perception of the object and the perception of its time and place, though closely connected facts, are distinct in their nature and in their logical relations. For these reasons language separates the perception of the thing from that of its time and place and relations. It is not strictly literal therefore to say, as some do, that place and distance, size and number, are perceived by the *senses*, or to say, with others, that we are *conscious* of time and succession, of sameness and difference, and so forth.

On this account, and because such cognitions as those of time and place, of quantity and number, and of collocation, succession, and other relations, accompany sense-perception and consciousness alike, and pertain to the objects of both, we have proposed a third class of presentational cognitions; and this we have named *concomitant perception*, because it accompanies the perception of the *ego* and of the *non-ego*. For these and their powers and operations are never cognized *per se*, or alone, but always as diverse from each other, as influencing each other, as having number and quantity, and as existing and operating in time and space, and as otherwise related. Granting the presentational perception of the *ego* and of the *non-ego*, and of their potencies and actings, it is difficult to deny that of the space and time in which they exist, and that of their immediate relations to these things and to each other. There seems to be no difference between our cognition of the concomitant and our cognition of the principal objects, save only that we regard the latter with a more direct and a more interested attention.

We have now exhaustively described the objects of presentational perception. They include *not merely psychical changes, and such material changes as take place in immediate connection with them, but also spirit and matter, with their powers and operations, together with time, space, quantity, and* *relation as the objects of concomitant perception.* Thus there is no kind of entity which is not immediately perceived.

This whole doctrine is more comprehensive than that of presentational realism, which relates only to the perception of matter, and therefore it may be designated by the unrestricted term "presentationalism;" while the opposite theory, which is more comprehensive than inferential realism, may be styled "inferentialism."

Kantianism.

3. A pernicious heresy, which is opposed to both these doctrines, since to a great extent it denies the reality of our perceptions, may here be noticed. It has been named, from its author, Kantianism. Immanuel Kant was born in 1724 in Königsberg, in Eastern Prussia, and died there in 1804, eight years after Reid died in Glasgow. His father, a saddler, was of Scotch descent. During forty years Kant was an eminent teacher in the university of his native city, and for a much longer period his ideas controlled the speculation of Germany. Dissatisfied with the teaching of Descartes and Leibnitz, who placed the ultimate ground of human belief in a certain inward clearness of conception, Kant devised a new theory. According to him perception results from two factors, *sensibility* and *reason*. By the first of these the soul comes into contact with things; by the second its knowledge is given form, without which it would not be knowledge, but mere sensibility. This knowledge, this result of the combination of sensibility with reason, he calls experience.

The forms with which reason clothes our diverse feelings not only originate within, but, so far as we can judge, represent nothing without; for they neither resemble external things nor have they any direct connection with them, but only with our sensibility. Hence space, time, substance, quantity, power, action, and even relation are mere ideas of the mind. In his "Transcendental Æsthetic" Kant sums up his philosophy of perception as follows: "The things which we perceive are not what we take them to be, nor their relations of such intrinsic nature as they appear to us to be. If we make abstraction of ourselves as knowing subjects, or even only of the subjective constitution of our senses generally, all the qualities, all the relations, of objects in space and time, yes, and even space and time themselves, disappear. As phenomena they cannot exist really *per se*, but only in us. What may be the character of things in themselves and wholly separated from our receptive sensibility, remains wholly unknown to us." Thus Kant allows that there are "things in themselves," but declares that our knowledge of what they are is wholly illusory.

Inconsistent

In regard to this famous theory we remark, first, that it is inconsistent in maintaining the existence of "the thing in itself," that is, of a reality external to us and existing apart from our experience. Since this thing is different from the modification of our sensibility, our conception of it, however indefinite, is no part of our experience, but must, like time, space, and relation, be a gift of "reason." If, then, we have no ground to believe in the existence of such entities as space, time, and relation, of which reason gives us the ideas, what ground have we to believe in any "*thing in itself*," beyond and distinguishable from our experience? Fichte, the founder of German idealism, seeing this, threw away "the thing in itself," and maintained only the existence of the *ego* and its activity. Indeed, Kantianism logically led to the abolition also of the *ego* as a substantial entity, and to that extreme idealism of Hegel which left nothing external or internal save the modification and development of thought.

One-sided.

Again, we remark that the doctrine of Kant is founded on a partial apprehension of truth and a partial acceptance of evidence. It asserts truly that thought originates within, and belongs wholly to the mind, and that all real knowledge begins in connection with experience. But it is wofully mistaken in not finding that *our necessitudinal, or ontological, conceptions exist first of all as elements of the presentational perception of fact*, and in *disallowing the validity of our primordial knowledge;* these two mistakes being closely related. Presentative knowledge is revealed by consciousness, so that we have the same evidence for the fact of this knowledge that we have for the fact of thought. We know that we know in the same way that we know that we think. Why accept the latter fact and reject the former? Certainly, unless there be good reason to invalidate the absolute natural confidence of our cognitions, it must stand. Nay, it will stand, whatever reasons may be brought against it, and however cogent they may appear. No argument can convince a man that he has no body, and that he does not exist in space and during time. The immediate knowledge of present facts cannot be reasoned away; one might as easily reason away the facts themselves. Such being the case, idealists and nihilists have cause to inquire whether there be not something sophistical or misleading in their methods of thought.

But, in truth, and as we might expect, critical examination shows that there is not one sound reason for doubting our primordial perceptions, but, on the contrary, many confirmations of them. Especially it is true that they are all absolutely consistent with each other and with all derivative convictions;

that they exist alike in all men, and never deceive any; and that inconsistency and falsehood are to be found only in the region of mistaken inference.

The offspring of error.

Once more we observe that Kantianism finds its chief support in various errors, more or less plausible, from which philosophy has freed herself in recent times. The Cartesians taught that *mind is unextended, and can have no direct connection with matter.* According to this doctrine, the presentational perception of matter and of its sense-affecting powers is inconceivable. Again, it was generally assumed that any adequate idea of a thing *must be an image or impression derived from the object in some way and similar to it.* This doctrine restricted perception to a sense or knowledge of what can affect our sensibility, excluding such things as space, time, and relation. In the next place, philosophers, from Plato down, gave the intellect *a power of immediately forming general notions to be afterwards combined with each other and applied to individual objects;* and this doctrine underlies Kant's conception of "the pure reason." It is clear that the products of such a power, if there were one, might be more easily doubted than those of presentational perception, in which first, as it is now taught, the ideas of reason are embodied, and from which they are subsequently generalized. Further, the assumption that *sensation or feeling gives or constitutes the knowledge of itself, while other objects do not furnish ideas of themselves,* is at the base of Kantianism. So far as we can see, the thought of the sensation, equally with that of the other things perceived, though originating on the occasion of the sensation, springs directly and solely from the soul's own power of cognition.

It was also an error to hold, as Kant did, that *because "contingent," or experiential, elements of entity are perceived only presentatively, or as connected with presentations, we may not also perceive the necessitudinal, or ontological, in the same way.* The natural inference from this is that since presentation and inference from presentation are our only modes of perceiving fact, the ontological elements of entity are not really perceived at all. This inference is suggested by Kant's opposition of "empirical, or *a posteriori*, cognitions," as conditioned on experience, with "*pure, or a priori, cognitions, which take place independently of all experience whatever.*" The fact is, as will be seen more fully hereafter, the experiential and the necessitudinal are cognized in the same way, on the same evidence, at the same time, and as existing in inseparable combination. Only afterwards, and by means of abstraction, the ontological is thought of apart from the various modes of the contingent.

Finally, it is not true, as the old doctrine of "ideas" implied, *that our primordial cognitions deal with representations or appearances of things, and not with the things themselves.* While Kant allowed that things really exist, he denied that "the thing in itself" — that is, the external thing, as having independent existence — is, or can be, the object of immediate cognition. Hence the doubt arose, Is it the object of cognition at all?

Presentationalism, on the other hand, analyzing the idea of immediate knowledge given us by consciousness, and testing the truth of it in every possible way, affirms that so far as we truly know, we know the thing in itself, — that the perceptive operation of the mind correctly apprehends the thing about which it is conversant, the thing itself, as it is, and not some delusion.

CHAPTER XIX.

ILLATIVE EVIDENCE.

Illative more prominent than presentative evidence.

1. EVIDENCE is more frequently mentioned in connection with inferential than in connection with presentational knowledge. Sometimes, when recognizing a fact as self-evident, we even say it does not need any evidence, and mean by this that it has no need of illative evidence. Thus one kind of evidence has a pre-eminence over the other. The reason is that the questioning of the mind seldom rests on the act of immediate perception, as this always produces certainty, but is often necessarily concerned with inference. Both kinds of evidence, however, should be the objects of philosophic study.

In philosophy evidence must include *all* truths necessary in order to a conclusion.

Again, in cases of inferential conviction, we often characterize that only as evidence which is the final and determining condition of belief, and which, therefore, alone needs to be submitted in order to produce conviction. Thus we might say, "The only evidence of fire in that house is that smoke issues from the chimney." In short, the word "evidence," having a practical reference, commonly stands only for those facts or truths necessary to be employed for conviction. But if, in addition to the foregoing, we felt called upon to submit the general truth that *smoke necessarily and in all cases comes from fire*, this also would be styled "evidence." In order to show a jury ignorant of the nature of strychnine, that a man was poisoned by this drug, the evidence would be needed, first, that strychnine is a poison, and, secondly, that this poison was in some way partaken of by the man. In the searching and comprehensive inquiries of philosophy, we ask for *all* the conditions of conviction; therefore we must now include under evidence all the facts or truths necessary to some conclusion, whether in practical life they all need to be mentioned or not.

"Grounds of belief" defined. "Proof."

When we speak of the ground or grounds of a belief,—the plural word indicating either more proofs than one or the existence of parts in one proof,—we mean very nearly the same as the evidence productive of the belief. The difference between the terms seems to be that evidence is confined to the conditions of actualistic belief. We speak of the grounds, but not of the evidence, of a purely hypothetical conviction. The suppositions which constitute the ground of a hypothetical belief, though merely thoughts without objects, exactly correspond to the facts and truths which are the evidence of a similar actualistic conviction. The *proof* of a statement or proposition is simply the evidence which makes it apparent, or the ground for our belief in it, considered as intentionally used to produce correct conviction.

The term "evidence" is used both objectively and subjectively.

We have already seen that in cases of presentation the thing itself, as in immediate relation to the perceptive power, is generally mentioned as being self-evident,—in other words, as its own evidence. But it is to be noted that we also speak of the evidence of consciousness, of sense, of sight, of hearing, and so on; and this way of speaking brings to view the real productive cause of conviction. So, likewise, in inference, we sometimes mean by evidence *the facts which, as viewed by the mind, sustain some conviction*, and at other times *the propositional truths which set forth the facts*. In short, the term is applied both objectively and subjectively. Each sense implies the other; neither can be condemned as incorrect. In actualistic inference the facts themselves, as distinguished from the propositions setting them forth, may literally be spoken of as evidence. This, of course, is not the case in that inference which is based merely on supposition. In all cases, however, the mind in some sense thinks of things, and infers by reference to the nature of things; nor can the laws of inference be formulated save in terms expressive of objectual relations. In short, propositional evidence is such only because of its actual or supposable correspondence with fact. Therefore, if we study the facts as evidence we shall understand the propositions also. This, too, will reveal the nature of the grounds of hypothetical conviction, as these are simply *supposed facts or realities.*

Inference originates constructions of thought and their attendant conviction.

The relation of presentative to illative evidence, and that also of presentational to inferential perception, has been given in characterizing the one as originative of thought, and as the primordial source of conviction, while the other is merely applicative and deductive. In saying that there is no origination of thought in inference, we mean that *no new element is added to the material of thought, and not that no new construction of thought takes place.* Let one weigh a bagful of feathers in a scale, and after taking them away let him balance the scale again by supplying lead instead of feathers. We now know the double fact that the feathers are of a given weight and that the lead also is of that weight. From this we conclude that the feathers and lead are equal to each other in weight. In general terms we say, "A and B are each equal to C, and therefore they are equal to one another." Now this equality of A to B, of the feather weight to the lead weight, may have been thought of for the first time in connection with the inference, and may differ from any construction of thought ever presentationally received. Nevertheless, as we believe, the various component ideas — of feathers, lead, weight, equality, co-existence, necessity — which constitute the new construction of thought, have been previously entertained and were originally presentations. Without this power of forming new constructions, neither imagination nor reasoning would be possible; and all mental action, after our first perceptions, would be restricted to memory and its modifications.

Moreover, in calling presentational perception *primordial*, we mean, *not that it furnishes the force of the conviction* attending inference, but only that *it is the necessary antecedent and condition* of inferential conviction. Presentational cognition is the foundation and support of all knowledge, and in this way the beginning of all certainty. Yet the conviction consequent upon illative evidence, like the new construction of thought which it accompanies, is something new, and is not derived from the force of the presentative evidence. As a bridge resting on piers has a strength of its own not derived from the piers, so an inferential conviction, while resting on facts, has a strength of its own not derived from the facts. This, indeed, is the sole strength belonging to *hypothetical* knowledge, which may therefore be compared to a movable bridge, not in actual service, but ready to rest on piers so soon as they may be found in the proper place. But as the strength of the bridge when resting on its piers is the medium through which the strength of these supports is felt, and completely unites its action with theirs, so the force of logical evidence completely unites itself with that of primordial evidence whenever an inference is fairly founded on perceived realities.

The radical law of all inference.

2. We are now prepared for a question concerning which there has been much discussion and much diversity of view, namely, What is the radical mode or law of thought belonging to all inference? More specifically, *What is the generic form of that construction of thought in which the mind makes use of illative evidence?* If the nature of belief and judgment, and the distinction between presentational and inferential perception be as already described, then the form of inference always is, "This exists; therefore that exists." We think of one entity or complex of entities, called the reason, or antecedent, as existing; and of another entity or complex of entities, called the consequent, as existing also; and of a necessity attached to the existence of the antecedent for the existence of the consequent. This necessity is expressed by "therefore," and other words of similar meaning. Such is the construction of thought in all inference; the confidence of belief or knowledge, which takes place in connection with this form of thought, follows upon the belief exercised in connection with the conception of the antecedent, and attaches itself to the thought of the necessity of co-existence and to that of the consequent as necessarily co-existent.

The name of the law. In itself a principle of action and not a principle of knowledge.

This law, or fixed mode, of mental action, which the mind obeys in constructing the foregoing form of thought and accompanying it with new belief, has been styled the principle, or law, of reason and consequent. Of these expressions, the term "law" is less ambiguous than "principle," to indicate the essential and universal mode of all inference. The term "principle" might signify a general truth known to the mind and applied by it in its reasonings; but *we now speak of a form of mental action in which or according to which* (*not from which*) *the mind reasons.* The law of reason and consequent is the universal principle of inference somewhat in the same way that the law of gravitation may be said to be a principle, or radical mode, of the action of matter. It is the fundamental law according to which the power of reasoning acts.

Now every principle, or law, of action may yield a principle of knowledge. That which in itself is merely a law of action, when apprehended by the mind, becomes — that is, furnishes — a general truth from which we may reason variously as to the operation of the law. From the law of gravitation as mentally apprehended, we can reason that any particular piece of matter will gravitate; so from the law of reason and consequent we can infer that any particular case of inference is from a reason to a consequent, from the existence of a determining condition to that of the entity conditioned.

But the law as apprehended, or the conception of the law, *is to be distinguished from the law itself.* The former is a ground of deduction, but not the latter. The law of reason and consequent is the mode of the mind's action in forming an inference; but *in itself* it is not the ground of any inference.

This law, *as mentally apprehended*, as a general truth setting forth the radical nature of reasoning, so far from being an universal ground of inference, is a ground of inference *only when we may be reasoning about reasoning, and not when we may be reasoning about other things.* In such cases *our use of it only exemplifies the operation of one or other of those specific principles which govern reasoning from general truths.* We may reason thus: "All inference is from an antecedent to a consequent; from smoke we infer fire; therefore here is an antecedent and a consequent." In this case the law of reason and consequent, as a general truth, forms part (only part) of the reason which the two premises compose; the principle, or law, underlying the argument, and according to which (not from which) we reason, is, "*What belongs to anything in the general, must belong to it in any individual instance.*" But even this law is only a specific example of the generic law of reason and consequent.

Consciousness of the process of inference does not involve deduction from the law of reason and consequent.

It is true that in every inference we not only think, but think *consciously*, of one entity or complex of entities as existing, and of another as necessarily coexistent with it, and so deduce the existence of the latter from that of the former. In other words, while inferring, we more or less distinctly understand what we are doing. But we can give no reason why the one entity is a reason and the other a consequent, or why we should thus form an inference. So that *we do not reason from one thing to another because we perceive them to be reason and consequent, but we perceive things to be reason and consequent because we can reason from the one to the other.* In short, the law of reason and consequent *as a principle of knowledge* — the statement that "every inference has an antecedent and a necessary consequent" — helps to test what professes to be an inference, and to analyze what is known to be such; but it never reveals whether or not a case of consequence may exist, or what consequent, in any case, should follow a given antecedent. On the other hand, the law of reason and consequent *in itself* is the radical mode of action experienced in every operation of the reasoning power. The fact, whatever it may be, which constitutes the antecedent, *suggests* the fact related to it as consequent; and thereupon we infer, not from the law of reason and consequent, but from a reason to a consequent, and according to the law of reason and consequent.

Every true reason is a sufficient or adequate reason.

In speaking of reason and consequent, it is to be understood that every reason is specially fitted by its nature to be a reason for its consequent, and, conversely, that every consequent is similarly fitted to be a consequent of its reason. It would be absurd to say that any reason may serve for any consequent. To suppose this — that we could infer anything from anything — would be to destroy our conception of reasoning. Hence the law of inference has been characterized, sometimes, as the "*law of sufficient reason.*" Possibly it might be better named the "*law of adequate reason,*" meaning a reason fitted by its nature to involve the existence of the consequent in its own existence. As already suggested, this is really part of our conception of a reason; for every true reason is an adequate one. But the expression brings the fact to view that the law contains two elements: first, that the existence of the consequent is necessarily connected with that of the antecedent; and, secondly, that this necessary connection arises out of the special natures and natural relations of antecedent and consequent. Thus the reason, "James is the father of William, who is the father of John," has the consequent, "James is the grandfather of John." Why? Because the double antecedent-fact and the single consequent-fact are of such a nature, and are so related by reason of their nature, that the former cannot exist without the latter.

The law of reason and consequent more fully stated.

So far, for the sake of simplicity of statement, we have spoken of the law of inference as if it always proceeded from one existing entity to another entity necessarily co-existent. But it is to be noticed that inferential no less than presentative judgment and belief consider the non-existent as well as the existent, and that *we infer not only from the existent to the existent, but also from the existent to the non-existent, and from the non-existent to the existent and to the non-existent.* By the non-existent, of course, we mean non-existence in a case where something might be supposed to exist. In short, there are both positive and negative inferences; and either may follow from either positive or negative facts. "There is no fuel, and therefore no smoke;"

"There is no food in the land, therefore there is disease and death," are examples of inference from non-existence. "The rock formation is granite, and does not contain coal," is an inference from existence to non-existence. The explanation of these forms of inference lies in the fact that there may be negative as well as positive conditions of a necessity, and negative as well as positive consequents of a necessity. Such being the case, a complete statement of the law of inference should refer to other cases than that in which both antecedent and consequent are positive. The whole truth might be expressed in the proposition that *inference always proceeds from a given fact, positive or negative, to another fact, positive or negative, necessarily connected with the given fact.*

A difficulty stated. The conversion of inferences.

3. A satisfactory understanding of the doctrine of inference calls for the discussion of another point. This pertains to a difficulty connected with the logical rule, "Affirm the reason, and you affirm the consequent; deny the consequent, and you deny the reason: but affirm the consequent, and you do not affirm the reason; or deny the reason, and you do not deny the consequent." This rule, as it stands, applies only to such inferences as have positive antecedents and consequents, for we cannot properly be said to affirm a negative statement. Strictly speaking, it would be more correct to say, "Assert the reason, and you assert the consequent; deny (or contradict) the consequent, and you deny (or contradict) the reason: but assert the consequent, and you do not assert the reason; and deny the reason, and you do not contradict the consequent." This rule may be illustrated from the example, "There is no fuel, and therefore no smoke." Plainly, if we assert that there is no fuel, we may assert that there is no smoke; and if we deny that there is no smoke (saying there is smoke), we may deny that there is no fuel (saying there is fuel). But if we assert that there is no smoke, we cannot assert that there is no fuel, for there may be fuel which is not smoking; and for this same reason also, if we deny that there is no fuel (saying there is fuel), we cannot deny that there is no smoke (saying there is smoke). In either case there may be fuel which does not produce smoke. In this example antecedent and consequent are both negative; an inference with positive parts, such as "Caius is a man; therefore he is mortal," would furnish simpler illustrations.

The perplexity, however, to which we have referred, pertains not to the form, but to the origin and ground, of the rule which has now been stated. As regards the first half of the rule, the clause "Assert the reason and assert the consequent," is simply the immediate practical application of the law of reason and consequent. We also easily approve the direction, "Deny the consequent and deny the reason," for the necessitating condition of anything cannot exist if the thing necessitated do not exist. To suppose the contrary would be to suppose a contradiction, — namely, a necessity for the existence of an entity which does not exist. The difficulty, therefore, is confined to the two clauses which make up the latter half of the rule; for since the reason is the necessitating antecedent of the consequent, it may be asked, How can the consequent exist if the reason do not? and also, How can the reason be non-existent if the consequent be a fact? Can the thing conditioned exist while the conditions are (or have been) without existence? Or can the conditions be non-existent while the thing conditioned may exist?

The difficulty explained. Separable and inseparable antecedents. Conditions.

This is the difficulty. The explanation is to be found in a distinction between the true and exact logical conditions (or determinants) of the existence of an entity and those conditions under some envelopment. A logical condition is any fact considered exactly or precisely so far forth as it necessitates (or determines) the reality of another fact, and no farther.

Such a condition and its consequent are inseparably connected with each other, so that if either exist, the other must exist; and if either be non-existent, the other must be non-existent. For example, among plane figures bounded by straight lines, we may reason thus as to a parallelogram: that if any figure have four sides and the opposite sides equal to each other, it must be a parallelogram; and conversely, if it be a parallelogram, it must have four sides and the opposite sides equal to each other. So, also, if any figure do *not* have four sides and the opposite sides equal, it cannot be a parallelogram; and if it be not a parallelogram, it cannot have four sides, and so forth. Or, to take another case, if a plane figure have four sides, and the opposite angles equal to each other, it is a parallelogram; and if it be a parallelogram, it must have four sides and the opposite angles equal to each other. Also, if the figure do *not* have four sides and the opposite angles equal, it cannot be a parallelogram; and if it be not a parallelogram, it cannot have four sides and the opposite angles equal.

From these illustrations it is evident that the same fact may be a logical condition of several facts, and also that several facts may be logical conditions of the same one fact. For *the existence of a parallelogram* has been given as the condition first of one consequent and then of another; and *each of these consequents*, in its turn, was used as the logical condition of the existence of a parallelogram. It may also be noticed, in this connection, that there are conditions which are not logical, but causal, or constitutive, or concomitant. Straight sides are a constitutive condition of an ordinary parallelogram, and so is the equality of the opposite sides, and the number of the sides, four; but *all of these together* are needed to compose a logical condition. For a figure either might have straight sides, or it might have the opposite sides equal to each other, or even both these things might be, and yet the figure need not be a parallelogram, but might be something else, say a regular hexagon. A logical condition always is a fact which of itself necessitates or determines another fact.

Now when an antecedent consists exclusively of a logical condition, or of more logical conditions than one, the inference is thoroughly convertible, — that is, either reason or consequent being asserted or contradicted, the other likewise may be asserted or contradicted. We can not only say (according to the common rule), "It is day, and therefore the sun has risen," and "The sun has not risen, and therefore it is not day," but also, "It is not day, and therefore the sun has not risen," and "The sun has risen, and therefore it is day;" because in this case the "risen sun" is an exact and inseparable antecedent of "day," and "day," also, speaking logically, is an exact and inseparable antecedent of the "risen sun." Generally, however, a reason is not composed exclusively of a logical condition or of logical conditions, but *consists of these in combination with other elements*. Hence there may be as many reasons or antecedents for a fact as there may be combinations of logical conditions with elements that are not such conditions. Hence, too, though one or more reasons for a consequent may not exist, other reasons may, and logical conditions in them; and such being the case, it is plain that a consequent may exist, though some particular antecedent do not; and, conversely, that a particular antecedent may be non-existent, while yet the consequent which would accompany it is a fact.

We therefore *distinguish between an exact and inseparable antecedent and a full or separable antecedent, the former being identical with a logical condition, or aggregate of such conditions, but the latter including more.*

Let us take the inference, "The man has inherited the farm; therefore it is legally his." The antecedent here contains more than a logical condition; for although it is a logical condition of ownership that one should have received a title in some way, it is not necessary that this should be by inheritance. It might be by purchase or gift. But should we say, "The man has obtained a good title, and therefore he is owner of the land," we would employ that exact antecedent which, with an accidental or non-essential envelopment, constitutes the fuller reason, — "inheritance." Commonly, antecedents are full and separable; but sometimes, especially in mathematical reasonings, they are exact.

CHAPTER XX.

LOGICAL NECESSITY.

1. EVERY mode or form of thought can be thoroughly understood only through an understanding of the objects with which it is conversant; and since every inference is the thought that something is because there is something else with which it is necessarily connected, we ask, What is this necessity, and what are its more important relations?

Necessity defined.

Necessity in general, like every other object of an abstract nature, should be defined from an analysis and comparison of the various modes in which it is manifested. Upon the accuracy of such a process the accuracy of our conception must depend. Merely referring in this way to the origin of the definition, we say that whenever any fact is a fact, and no power can make it not to be a fact, it is necessary: and its necessity consists in its being a fact thus related to power. As a fact is always the existence or non-existence of something, every necessity pertains either to the existence or to the non-existence of something, and is positive or negative according to the character of the fact to which it belongs. When a thing exists, and no power can make it not to be, it is necessarily existent; and when a thing does not exist, and no power can make it to be, it is necessarily non-existent. In each case the necessity lies in this: that the fact, being a fact, cannot be made not to be a fact.

A mistake corrected.

We think, and incline to think, of things existent more than of those non-existent, and therefore think oftener of positive than of negative necessities. Hence it is a natural mistake to say that necessity belongs only to things existent, and is the property of that which, being existent, cannot be made not to exist; and, along with this, to define impossibility as the character of that which, being non-existent, cannot be made to exist. These conceptions are incorrect. An impossibility is never a fact, either positive or negative, but always the reverse of fact. Aristotle rightly says that existence and non-existence (εἶναι and μη εἶναι) are the proper subjects respecting which necessity is affirmed or denied, and that some things are necessary to be, and others necessary not to be. To illustrate negative necessity, we might say that there is a necessity arising from the nature of God that he should not be partial in his judgments; and this statement should be distinguished from the other, indissolubly connected with it, that it is impossible for God to be partial in his judgments.

Positive and negative necessity.

Positive and negative necessity differ only in the opposite character of the facts to which they belong, and are similar in their own nature and origin. That the sum of the three angles of a triangle should be equal to two right angles, and that it should not be greater or less, are things necessary in the same way. In each case, the triangle existing, there is a fact which no power can destroy; and in each case the necessity arises from, or exists in connection with, the relations of quantity between angles formed by straight lines of different directions in the same plane. Since, therefore, a negative necessity is of the same nature, and exists in the same way, as a positive necessity, we need only discuss the latter in order to understand both. This singleness of discussion is desirable for the sake of simplicity.

The origin of necessity. Logical relations.

2. The origin of necessity, by which we mean the principal condition of its existence, is a relatedness of fact to fact. When one thing exists, and must exist, because some other thing exists, this evidently is so because the consequent fact has a peculiar relationship to the antecedent fact. More specifically, we may say that the necessity of any fact accompanies and depends upon some certain natural relation in which it exists to the necessitating fact, — that is, some certain relation which connects the facts as having given natures. Hence it is that, knowing the antecedent fact, we forthwith conceive of, and believe in, the consequent fact as existing in such a connection. The various relations which the mind refers to and uses in this way, when viewed with reference to this mental employment of them, may be styled the logical relations of fact, or of things as existing.

The statement that the necessity of a fact originates from, or is caused or produced by, its relation to another fact, is not literal. It would be more correct to say that it originates with, depends upon, and accompanies the relatedness. The equality of three angles to two right angles is so related to their being the angles of the same triangle that the former fact necessarily exists in connection with the latter; but this relation does not, properly speaking, produce, or originate, the necessity. The necessity that there should be fire where there is smoke accompanies the relation of fire to smoke as the cause of smoke; but this relation does not originate the logical necessity (which yet depends on it) of the existence of the fire. Nevertheless, as the necessity depends on the relatedness and accompanies it, so that the necessity is perceived in connection with the relation, we sometimes express this by saying that the former arises from the latter, or is produced by it. This language need not be condemned, provided it signify no more than we have now indicated. In the statement that the consequent is so related to the antecedent that no power can make it not to be a fact, the words "so that" do indeed indicate dependence and sequence; but *the dependence is not that of effect upon cause, but simply of a thing conditioned on its condition;* and the sequence is merely that of belief, and not of causation. A similar caution pertains to the significance of the logical terms "consequence" and "consequent;" *objectively speaking, the consequent is not that which follows from the antecedent, but that which in some way is necessarily connected with it.* This is an example of those cases which frequently occur, in which a reference to our rational use of facts affects our language respecting them, and tends to obscure our perception of them and their relations as they exist *per se.*

Logical relations are themselves necessary relations.

We have now further to say that the logical relations of a fact not only do not produce its necessity, but are themselves included in the same necessity with the fact; in other words, it is not simply the fact alone, and because of its relationship, but it is *the fact as related, or with its relations*, that is necessary. In an equilateral triangle the mutual equality of the angles is not only a necessary fact, but it exists also as *necessarily related* to the equality of the sides. The geometrical relation of the consequent to the antecedent fact cannot but exist if the antecedent exist, and therefore it is a necessary or logical relation. So, also, an effect is logically related to its cause; there is a nexus which cannot be destroyed. The consequent fact that "A is part of C" is united to the antecedent fact that "A is a part of a part of C" by a necessary relation of quantity; for the part of a part must be a part of the whole. So, also, the consequent fact that a cause, being similar to another, will produce similar effects, is related necessarily to the antecedent that such or such a cause has produced such an effect, by reason of the nature of power. In each case there is an operation of power; and it belongs to the nature of power to act similarly under similar conditions.

The relations thus existing between a consequent and an antecedent are very diverse; but the relation always exists necessarily if the antecedent exist. Considered by themselves, these relations may be called *the necessary relations of fact;* with reference to their *fundamenta* — that is, the objects between which they exist — they may be styled *relations of connection.* But by this connection we are to understand only that necessary co-existence, or correality, of fact with fact, which accompanies the existence of the relation.

Necessity, absolute and relative. As necessity is a relatedness of fact to power, and as power exists in various forms, and has diverse spheres of operation more or less extensive, it follows that a fact may be necessary with reference to all power, or only with reference to some special form of power. Accordingly we distinguish between absolute and relative necessity. That is absolutely necessary which no power whatever can cause not to be. It is absolutely necessary that an isosceles triangle should have the angles at the base equal to one another, and that a parallelogram should have its opposite sides equal; also that a murderer or a blasphemer should be subject to the penalty of moral law. No power could make these things otherwise. Again, the execution of any Divine purpose is absolutely necessary, because it is conditioned on infinite power, wisdom, and skill; and these cannot be defeated. On the other hand, a debt of one thousand dollars is a necessary burden to a man who has no means and no friends; not because such a debt is incapable of satisfaction, but because one of the conditions of the case is that the man is without the means of payment. In like manner a poor man must of necessity sometimes go coarsely clad, because he has not the means of obtaining fine clothing; whereas this necessity does not exist as to the rich man.

It is often useful, and sometimes indispensable, when the question is whether something be necessarily so or not, to ask whether the necessity be absolute or relative, and if relative, to determine what the power may be whose sphere of exercise is limited by the necessity. A fact may be relatively, yet not absolutely, necessary; and what is necessary in relation to one power may not be necessary in relation to another.

Moreover, every case of relative necessity involves not only that a given power cannot alter the fact, but also that *no power adequate to alter it is exercised.* For example, the debt would no longer be a necessary burden to the poor man if his rich neighbor paid it for him. This, therefore, though often understood rather than expressly noted, is always a condition of a relative necessity.

Hypothetical and real necessity.

It is sometimes important to distinguish hypothetical from real necessity. The former is not a kind of necessity differing from the real; it is an ideal object which does not exist at all, but is conceived of as existing with the same nature as if it were real. When the antecedent of a necessity is real, the necessity is real; but if the antecedent be merely imaginary, the necessity is so too; and in that case, with a reference to the supposition of its condition, it is called hypothetical. This language signifies that no necessity really exists, while yet the mind has conceptions corresponding to what the necessity and its conditions would be if they did exist. Such being the case, it is clear that, to understand hypothetical necessity, we have only to understand that which is real.

The term "condition" defined. Accidental and necessary. Causal, constitutive, concomitant. Logical conditions.

3. Any fact, which being real, another fact is necessarily related to it, and necessarily exists as thus related, is a logical antecedent of the other. We have seen that antecedents are either full and separable or exact and inseparable; the latter including only such elements as are necessary conditions of the consequent fact, while the former contains elements additional to these. We defined a logical condition to be a fact considered precisely so far forth as it may support the necessity of another fact, and no farther; and showed how every antecedent contains at least one such condition, while every exact antecedent excludes everything that is not a necessary condition, and is always itself a logical condition. For any antecedent which, in addition to a logical condition, should contain only such elements as are necessary conditions of its consequent, would therein be a logical condition.

As the word "condition" is of constant occurrence in philosophy, and as an important truth is expressed in the phrase "logical condition," it may be advisable for us to dwell on the meaning of these terms. The term "condition" being derived from the Latin *condere*, "to join," applies to what exists in intimate connection with something, — that is, to any of its circumstances. This connection, so far as the nature of the thing conditioned is concerned, may be either accidental or necessary. For example, a man's condition in life — that is, his "circumstances" — is accidental in the sense that the man might exist under other circumstances. So, also, the condition of a farm of land — that is, its state of fertility — is accidental, because the farm might exist in a different condition. And, in a contract, the thing to be done is connected with the condition of its being done in a manner accidental so far as regards its own nature. But light is a *necessary* condition of vision, good food of health, a plane surface of a square, a square side of a cube, and so on; for these conditions are not only connected, but necessarily connected, with the thing conditioned, so that they must exist if it exist.

Generally, in philosophy, when we speak of a condition, simply, we mean a condition of this sort, a necessary condition. But there are various kinds of such conditions. For example, *causal* conditions are those elements which enter into and constitute the cause of any effect; for, evidently, if the effect exist, each of these elements must exist. *Constitutive* conditions are those which enter into a thing itself, as its parts or elements; thus lines and angles are necessary parts of a triangle. *Concomitant* conditions are such as necessarily accompany the existence of something without being causal or constitutive; for instance, it is a condition of the existence of a right-angled triangle that the square of the hypothenuse should be equal to the sum of the squares of the two sides. So, also, the production of water is a concomitant condition of the melting of ice; for it is a necessary effect of that cause, and there is a sense in which an effect accompanies its cause.

Now a *logical* condition differs from those that are merely causal or constitutive or concomitant, in that any one of these may exist while yet the thing conditioned may not exist, some other element being needed to necessitate its reality; but *a logical condition not only exists necessarily, or is given, with the fact it conditions, but also necessitates the fact.* It is a condition as being given with the fact; a logical condition as having the fact also given with it. The logical is the necessitating, or determining, condition; and as such it might be named the logical necessitant, or determinant, of that which it conditions.

Every logical necessitant is constituted from necessary conditions.

Examination shows that every necessitant, or exact antecedent, of a fact is either some necessary condition of that fact, or is composed of such conditions. We express this truth by naming the exact antecedent a logical condition, and by saying that every ordinary antecedent must contain a logical condition. Moreover, it is evident that only conditions, including logical conditions, can be consequents; for a condition is simply that which is necessarily connected with the existence of something. This explains how every thoroughly convertible inference must have a logical condition for its antecedent.

An ultimate law of being.

Still we may ask, Why is every exact antecedent composed of necessary conditions, and itself such a condition? Why is it a consequent of its own consequent? Or, in yet different language, Why is every logical necessitant necessitated by that which it necessitates, so that if either exist the other must exist, and if either be non-existent the other must be non-existent too? This query is allied to another of less scope, namely, Why is the precise philosophical cause of any effect so connected with the effect that we can always infer cause from effect as well as effect from cause? Perhaps neither question admits of any answer save that which is simply an analysis of the truth presented for explanation.

In regard to the necessary and mutual co-existence of cause and effect, we may say that power acts only under conditions, and that such is the nature of power, and of entity in general, that the same results and the same conditions of the operation of power are mutually inseparable. Here, of course, by "same" we mean the precisely similar; and among the conditions of the operation of power we include the special nature of any potency itself. All the elements of the foregoing answer seem included in our very conceptions of a cause, of an effect, and of the mutual connection between them. As to the more general truth of the necessary and mutual co-existence of the logical condition (or necessitant fact) and its consequent (or the fact necessitated), we may say, in like manner, that the *limitations* as well as the *results* of the operation of power depend upon conditions, and that the same limitation and the same conditions of limitation are inseparably connected. Therefore the same limitation of power so that it cannot make a fact non-existent (in being related to which limitation the fact is necessary), and the same set of conditions limiting the power (and necessitating the fact), are mutually inseparable. Here, again, we only present certain elements involved in the truth submitted to our inquiry. The principle is explained, but it is not *accounted for by reference to any principle other than itself.* That the logically necessitating, as such, is also the logically necessitated, seems to be an ultimate law of being, — a part of the very structure of existence.

Logical co-existence and necessitation.

4. It has been frequently stated in the present discussion that logical necessity involves the co-existence, or correality, of antecedent and consequent. We need scarcely remark that *the co-existence here spoken of is of the most general character, and is not contemporaneous existence.* Antecedents with reference to their consequents are sometimes past, sometimes present, and sometimes future; and the converse is true as to consequents. So, also, when we say that the antecedent, or reason, necessitates the consequent, we do not mean at all to say that the antecedent *contains the cause of the consequent* and makes it to be, but *only that the antecedent*

contains the logical condition of the consequent; in other words, that if the antecedent exist, the consequent also, as existing in some necessary relation to it, cannot be made not to exist.

Causal contrasted with logical necessity.

For the most fruitful source of misconception on this subject is the confusion of logical with causal necessity, when the latter includes more than the former, and should be regarded as a prominent and peculiar species of it. In every necessity there is a necessitating antecedent and a necessitated consequent; and our use of language, together with a subjective reference to the sequence of thought, favors the idea that there is always power in the antecedent to produce the consequent. But such is not the case. The exercise of power belongs to those antecedents only by which something is literally caused to be or not to be. *In all others there is no power* — that is, no exercise of power as operative or as related to its effect — *but only what may limit the operation of power.* The fact that two quantities are each equal to a third contains no efficiency making them equal to one another, but it is a fact of such a nature that the mutual equality exists with it, and cannot be made not to exist. The fact that Paris is in France and that France is in Europe, is not the efficient cause of Paris being in Europe, but it is a fact with which the other fact necessarily co-exists.

Causal necessity, on the contrary, takes place and exists whenever any beginning or change of existence is produced or prevented; and the exercise of power is its principal condition. For when power sufficient for some result is exercised, and there is no adequate power of opposition, the result must follow. Indeed, when speaking of an event as necessary, we naturally and commonly think of it as *causally* necessary, that is, as being *made to exist* by some sufficient efficiency, and not *simply as existing in circumstances in which no power can make it not to exist.* Thus the thing as necessary is seen to have these two relations to power; but, considered simply as logically necessary, the latter alone belongs to it. In this way the words "necessity" and "necessary" have an ambiguity.

The difference between causal and merely logical necessity may be understood from this, that the former pertains to things only as they result from the exercise of power, and includes their relatedness to the efficiency producing them, but the latter belongs to things in various other relations beside that of an effect to its cause, and excludes, from its own proper nature, the peculiarity of this relationship. A cause in its relation to an effect is as logically necessary as an effect in its relation to its cause; yet the effect has no efficiency to produce the cause. Therefore the logical necessity of the *effect* does not include the fact that power causes it to be, *but arises because of the fact that power causes it to be;* for, there being an adequate cause, the effect exists, and this cannot be otherwise.

Ratio cognoscendi and *ratio essendi.*

This difference between causal and logical necessity is the ground of the distinction between the *ratio cognoscendi*, or order of perception, and the *ratio essendi*, or order of existence. The order of perception is the same as that of logical necessity, in which the consequent is said to follow the antecedent, — this meaning that its existence is connected with, and inferable from, that of the antecedent; but the order of existence is that of causal necessity, in which an effect literally follows its cause. The one order sometimes coincides with the other, but more frequently it does not. We cannot too firmly fix it in our minds that logical necessity, not causal, is the necessity referred to in every act of reasoning; and that when we say that a consequent exists because an antecedent exists, we do not mean to say that it is *caused by* the antecedent, but only that it *necessarily exists as related to* the antecedent. Inference depends upon conditions, not upon causes, — upon causes only so far as they are conditions.

The relation of logical necessity to inference exactly defined.

We have now discussed logical necessity as the external basis of inference. For in reasoning we perceive a fact not immediately, but because of its necessary co-existence with some known fact. The question, however, may now be asked, whether we do not, in the first place, simply perceive the fact as connected with the other fact, and then, as confirmation of this cognition, perceive the necessity of the co-existence, — that the fact could not be otherwise. *Such, we believe, is the case.* That is, the perception of the concomitant fact does not depend on the perception of its necessity, but rather the reverse is true. For the necessity originates from the nature and relations of the fact, and therefore presupposes the fact. But a belief thus formed, if in any way questioned, is instantly confirmed by a perception of the necessity of the fact as related to the given fact; and *such inferential belief is formed only in cases where this necessity exists.* Evidently the mind has a wonderful power of suggestion, whereby, independently of any consideration of necessity, it sees things unseen as co-existent with, and related to, things seen. But the unseen, while thus perceived, is always *necessarily* co-existent and related, and may be viewed also in this light. Logical relations are always necessary relations. We infer only such things as have some necessity of existence, either absolute or relative. If one should classify the necessary relations of fact, he would classify also the various modes of inference. The doctrine of necessity, and of things as necessarily related, cannot be separated from the doctrine of reasoning.

CHAPTER XXI.

LOGICAL POSSIBILITY.

An old definition discussed and amended.

1. LOGICAL possibility — that is, possibility in general, considered as the basis of a certain mode of reasoning — has been thus defined in scholastic language: "Possibilitas est consensio inter se, seu non-repugnantia, partium vel attributorum quibus res, seu ens, constituatur." This might be rendered: "Possibility is the mutual harmony, or non-repugnance, of the parts, or attributes, which constitute any thing, or entity."

To this statement it may be properly objected that the parts of a possible object must not only harmonize with each other, but that they, and the object as a whole, must also harmonize with other things, — that is, with the circumstances in which the object is supposed to exist.

Let the problem be to construct a square with four straight lines of different lengths. We say, this is impossible, because a plane figure with four sides of different lengths cannot contain right angles. The parts of such a thing are conflictive with one another. There is no contradiction, however, in the idea of a square with four straight sides of equal length. The parts of such a figure are mutually compatible; and, in general, it is clear that the parts of a thing possible must be compatible with one another. But it is also evident that *the construction of a square of a given area is possible only on a plane surface of sufficient dimensions;* for example, a blackboard. It would be impossible to make such a figure on a spherical surface, or on a plane surface less than itself in area. This shows that the parts, or elements, of the object must harmonize, not only with each other, but also with the circumstances in which the object is perceived, or supposed, to exist.

We may, indeed, justify the scholastic definition *by so enlarging our conception of the thing possible as to take in the given circumstances.* We may make these, as it were, parts of the object. Thus "a square with a side of four inches on a board six inches by six" may be regarded as one possible object; and "a square with a side of eight inches on a board six by six" as one impossible object. But this comprehensive mode of conception is not one generally employed. Philosophers should adapt their language, when this is possible, to common modes of thought; and in the present case it would be better to say that possibility is the harmony of the parts of an object with each other and with given surroundings.

But let us note, further, that, *ordinarily, the internal possibility of a thing is taken for granted; so that our inquiry, for the most part, concerns only external possibility.* An animal is a thing internally possible, because its parts may co-exist; and it is externally possible where there are food and air and other necessaries. When we ask whether animal life is possible in some distant region of the universe or amid the surroundings of some past geologic age, our question evidently limits itself to the thought of the compatibility of animal life with certain external circumstances pertaining to food, air, climate, and so forth. Indeed, our common mode of thinking being directed almost exclusively to external consistencies, ordinary logical possibility might be defined simply as the compatibility of a thing with given surroundings; in which definition, however, the presupposition is involved, that the parts, or attributes, of the thing are harmonious with each other. A very wide definition of possibility is that *it is the compatibility of one thing with another, or with others, with which it may be perceived, or supposed, to co-exist.* This statement covers both external and internal possibility; for it implies both that the parts mutually harmonize, and that the object, as a whole, is compatible with given circumstances.

Logical possibility is an existential compatibility.

The words "harmony" and "compatibility" ordinarily mean that two or more persons have such dispositions that they live together in peace and without hatred; or that different notes of music are such that they do not make a disagreeable but a pleasant sound; or that two trades or occupations are such that both may be profitably pursued at the same time by the same person. In such cases the compatibility of two or more things allows the existence of another thing, while their incompatibility would prevent the existence of that other thing. According to this use of terms, incompatible things may exist together, but cannot be attended with peace or pleasure or profit. When, however, we speak of logical compatibility or incompatibility, we mean simply that two things are such that they may exist together, the one with the other, or that they are such that they cannot exist together. Logical possibility, therefore, might be defined as the *existential* harmony of one thing with others. Yet even this should be accepted as presenting rather an analogy than an analysis; for the relation of existential compatibility has something in it ultimate and *sui generis.* The thought of it is very simple, like that of existence or of non-existence; and it is to be contrasted with the relation of logical confliction, or repugnance, very much in the same way that existence is to be contrasted with non-existence.

The radical law of inference in possibility.

The most important question touching logical possibility concerns the mode in which the mind determines respecting anything whether it be possible or not. This leads to the remark that *the doctrine of possibility, like that of necessity,* is i[illegible]*ately related to the doctrine of conditions*,—that is, to the doctrine o[illegible]e necessary conditions of a thing. For here, to avoid confusion, we [illegible]t distinguish two senses in which the term "condition" may be use[illegible] in connection with the subject of possibility; because if one should ask, Is such a thing possible under such and such conditions? it is plain that he would not be speaking of the necessary conditions of the existence of a thing. It would be foolish to ask whether a thing is compatible with the necessary conditions of its existence. He would simply mean, Is the thing possible under such and such circumstances? In the present discussion let us employ the word "circumstances" for those given or supposed facts with which something may be affirmed or denied to be possibly co-existent. And let us confine the term "condition" to the necessary conditions of the existence of a thing. We have already seen that these conditions may be divided into three classes, — the constitutive, the causal, and the concomitant.

Now it is self-evident that a thing can exist only where the necessary conditions of its existence can exist, — in other words, the compatibility of a thing with given circumstances involves also the compatibility of its conditions with those circumstances. Therefore, when a thing is possible in its constitutive, causal, and concomitant conditions, it is possible in every respect; and *the possibility of a thing may be determined by determining the possibility of its conditions.* This radical principle is the most important in the philosophy of the possible.

Very little examination will satisfy any one that inferences in possibility take place according to the law just mentioned. After it is settled that the thing in itself — that is, in its constitutive conditions — is possible, we naturally proceed to discuss whether its causal and concomitant conditions, severally, be compatible with the case or not. After it had been decided that a telegraphic wire twenty-five hundred miles in length could be made and operated, the further questions arose: Can it be insulated against the pressure of great weights of water? Can it be let down to the bottom of the ocean without twisting and breaking it? Can machinery be devised for the construction of it, and vessels be procured for its conveyance? And can the confidence of capitalists be obtained, so that the necessary expenses may be met? The first Atlantic cable followed upon an affirmative answer to these questions. Evidently we infer the possibility of a thing from the possibility of its conditions.

The postulates of possibility.

To some this statement may present a difficulty. It may be said: If the possible involve possible conditions, will not these involve yet other possible conditions, and these still others; and so will not an infinite regression be needed to establish any possibility? We reply that it would be needed were there not conditions whose possibility is self-evident. *But an immediate perception of possibility takes place in several ways.*

In the first place, whatever actually exists in any given circumstances, exists under every one of its necessary conditions, and is possible in every respect. Hence in those frequent cases in which a condition actually exists, there is no need of inquiry as to the possibility of that condition.

In the second place, whatever has existed may, in similar circumstances, exist again; and this principle enables us to determine the possibility of a condition which, though not known to be fact, is known exactly to resemble fact. For the thought of possibility pertains to forms conceived of as existing, and not to real things *as such;* and we may at once, and once for all, perceive a form to be possible.

Finally, in other cases there is no regression, because *the radical, or ontological, elements and conditions of things,* — such as spaces, times, powers, substances, actions, and changes, — *in the various relations according to which these condition one another, are immediately recognized by the mind as possible.* Thus many radical conceptions of things possible are formed. In the use of these conceptions, in which the possibility of the ontological character and conditions of a thing is asserted, other and less abstract possibilities are determined. We say it is possible for a bushel measure to contain a peck of potatoes. This is simply the concrete operation of the principle that what can contain the greater can contain the less. But this law of the possible in spacial measures, together with the possibility of its conditions, — such as space, substance, quantity, and the mutual relations of these things according to the terms of the law, — is immediately perceived by the mind. Such ultimate conceptions or judgments may be styled the first principles, or postulates, of possibility. Like our conceptions of fundamental necessities, they seem to be originally formed by the mind during its perception of facts.

The foregoing remarks show how the statement is to be taken that the possibility of a thing must be inferred from that of its conditions. Of course, when possibility is self-evident, it need not be perceived inferentially; in a large number of cases it may be immediately perceived, and therefore need not be proved.

2. Such are the essential points in the doctrine of logical possibility. But an exact understanding of this doctrine calls for some supplementary statements.

The assertion of possibility does not involve the denial of existence

First, let us note that although the conception of possibility involves the conception of existence, the assertion of possibility does not, of itself, involve the assertion either of existence or of non-existence. A thing is possible in that it is possible to be, or as to its existence. Therefore, to determine the question of possibility, we have first to conceive of a thing as existing, and then to ask whether its existence is compatible with the given circumstances. But while we must conceive or imagine the thing in question to exist, we do not assert either that it is or that it is not. The assertion of possibility, in itself, only states that if a certain thing should exist it would harmonize with given circumstances; it does not say whether the thing exists or not.

Frequently, indeed, we ask whether a thing not now existing may be realized in the future, or may have been realized in the past; and then, *combining the idea of non-existence with that of possibility, we mean by the possible the merely possible, the non-existent possible.* This limitation of thought is implied, also, when we contrast the possible with the actual, — when, for example, we speak of all things actual and of all things possible. In such cases there is an addition made to the simple idea of possibility of something which is non-essential to that idea; for we can also say that a thing is not only possible but actual, and that it is possible because it is actual. The transmission of thought through the depths of the ocean is possible because it is a thing in actual operation. We can even say, in one *very* literal sense, that nothing is possible but what is actual; *for only that which actually exists, can exist in actual compatibility with other things.* The possibility of a thing which does not exist, and which is only conceived to exist, is only a conceived-of possibility.

We think very frequently of this merely ideal possibility, and much more frequently of it than we do of that actual possibility which the ideal would become if the object really existed. In this way we come to suppose that the assertion of possibility necessarily involves the non-existence of the thing possible. But that assertion, considered purely and in itself, does not involve a belief either in the existence or in the non-existence of its subject. That it does not, is evident, because the conviction of possibility is often cherished with the hope that it may add to itself the perception of fact. Those who went lately in search of the Arctic explorers did so in the hope, "They may be yet alive."

Real and hypothetical possibility.

In connection with the statement that possibility may be either actual or ideal, — the possibility of a fact or the possibility of a thing supposed, — we must mark a very peculiar distinction of possibility into the real and the hypothetical. One might suppose real and hypothetical possibility to be the same as the actual and the ideal possibility just mentioned. The words naturally bear this signification; but in point of fact they are used in another sense. A thing is called really possible when any of its conditions are real and known to exist, even though the thing itself does not exist; and it is hypothetically possible when any of its conditions, being either non-existent or not known to exist, are yet supposed to be.

These modes of possibility are consistent both with each other and with actual impossibility. Had a man plenty of money to buy a farm, which the owner nevertheless could not be induced to sell at any price, the purchase would be really possible so far as regards money, and hypothetically possible so far as regards the consent of the owner, yet, on the whole, actually impossible. We do not commonly, however, while asserting real possibility, know that the object under consideration is, on the whole, impossible; nor do we always understand that the condition supposed in hypothetical possibility is non-existent: we frequently do know that it does not exist, but sometimes only do not know whether it exists or not. If the searchers for the Arctic explorers did not know, or have good reason to believe, that the explorers had food sufficient to support them for a given time, the hope of finding them alive would be supported by a possibility only abstract and hypothetical; yet this possibility of a sufficiency of food would consist with the fact of a sufficiency.

Partial and perfected possibility.

Again, philosophy requires that we should discriminate between partial and perfected possibility. A thing may be known or supposed to be possible with reference to all the necessary conditions of its existence or with reference to some only; in this latter case it may be said to be partially, and in the former to be perfectly, possible. Partial possibility consists with either necessity or impossibility; but perfected possibility involves necessity, and excludes impossibility. For example, if a person had ability, opportunity, preparation, and sufficient inducement to make a speech, — in short, all the conditions of this effect, — the speech would be both possible and necessary. But if only one or two conditions were known or supposed to exist, and it were left unsettled whether or not the others existed or could exist, then the speech would be possible so far as concerned the known or posited conditions, but, on the whole, it might be either necessary or impossible. So far as a thing is possible, it is compatible with other things; so far as it is necessary, it is inseparably coherent with other things. These are different, though they are intimately allied relations.

Logical distinguished from causal possibility.

Another needful distinction is that between possibility in general, or logical possibility (or compossibility, as Chillingworth named it), and causal possibility. This is exactly parallel to the distinction, already discussed, between causal and logical necessity. A thing is causally possible when any of its causal conditions does or may exist. Power, adequate in nature and degree to the production of the object, is the most important of these conditions. When we find that an adequate power exists, we say that the thing is possible so far as that condition is concerned. Then we inquire concerning other conditions, and from their existence or nonexistence determine the question as to the remaining elements of a complete possibility. If there were a tailor, we would know that a coat was possible so far as regards productive skill. We might then ask, Is it possible as regards material? Where are the cloth, lining, thread, buttons, and so forth? Next, Is it possible as to instruments? Has the man a workshop, needles, scissors, and other implements? Finally, Is it possible as to sufficient inducement? Have you the money to pay the tailor for the coat? Thus one might successively consider the different causal conditions of a coat, so far as there was any question concerning each; and he would naturally do so in the order of their practical importance.

On the other hand, *a thing is logically possible when any of its necessary conditions exist, whether they be causal conditions or not.* A man ignorant of the details of Japanese geography might say, "Yokohama and Yeddo may be twenty, or they may be one hundred, miles apart, for all that I know:" because either of these supposed things would be compatible with the fact that both cities are in Japan; either of them would be possible with reference simply to space relations.

Only effects are causally possible; causes, as such, are possible logically, not causally. God is neither causally possible nor causally necessary, — he never could have been produced, — but he is logically possible and logically necessary. His existence is both compatible with that of the universe, and necessary as that of the cause of the universe, — a cause that must have existed. The reasonings of pure mathematics refer to logical but not to causal possibility and necessity. The thoughts of daily life and of scientific experiment are chiefly concerned with causal. These thoughts, too, greatly influence our ordinary use of language. Hence the possible often signifies that which can be produced or brought about; indeed, originally the possible may have been the practicable or the makable. But possibility in general is simply the existential compatibility of a thing, and its conditions, with given circumstances, and is not at all confined to the compatibility of the production of a thing with given circumstances.

Reasoning in possibility is subservient to reasoning in necessity. Five steps.

3. We are now prepared to understand how the mind, in its pursuit of the cognition of fact, — which alone is true and complete cognition, — forms and uses its knowledge of the possible. One is often unable to determine directly, from his knowledge of the circumstances of a case, what the truth may be respecting some point of inquiry, — that is, he is unable to discover any real antecedent which, as involving a logical condition, necessitates the reality of some object conceived of. Such antecedents may exist, but he knows not where to seek for them, or, at least, has not been able to find any. In these circumstances the direct search for truth is abandoned, and the inquiry, Is the thing supposed possible? takes the place of the question, Is it necessary?

This inquiry as to possibility may be prosecuted in various ways; but when fully developed it is twofold, referring, first, to hypothetical, and then to real, possibility.

For first, if need be, *we ask as to the abstract possibility of the thing*, — that is, its possibility without reference either to any specific circumstances or to the *actual* existence or non-existence of any conditions. This inquiry is to determine the ideal compossibility of the conditions, internal and external, of the object with each other, and with the necessary elements and laws of being. If any conditions be found incompatible with each other, or with any radical law of existence, *there is no need of further inquiry.* No matter what existing circumstances may be, the thing is impossible, and does not exist.

But if the abstract supposition do not thus involve contradiction and absurdity, our next inquiry might concern *the hypothetical possibility of the thing under the given circumstances.* In other words, we might ask whether the necessary conditions of the thing be possible and supposable in the case presented. Here, also, if any condition should appear thus impossible, our quest for truth would terminate.

Otherwise we should immediately pass to the second leading inquiry concerning possibility, and should ask, *Is the thing really possible? Do its conditions really exist?* For we assume that an attentive study of the thing under consideration has brought distinctly to view its necessary parts and other conditions. *Suppose now we find that some condition of the thing does not exist*, is not contained in the given circumstances. This being the case, the thing is *really* impossible; for a thing cannot exist so long as any one of its conditions is non-existent. Thus, again, the possible has been our guide to the real; it has led again to the really non-existent.

But *suppose*, further, *that every condition concerning which we can inquire is found to be a reality.* We now say that, so far as we can see, the thing is really possible, and cannot be denied to exist; we can inferentially deny only the impossible. In this case reasoning in possibility enables one to reject any unfounded disbelief, — that is, any unfounded belief in the non-existence of the object, — and prepares the mind for the proper consideration of evidence.

Moreover, logical conditions, or exact antecedents, being composed of necessary conditions, inquiry after the latter puts us better in the way of meeting with the former, or with reasons containing them; and thus, searching within and over the field of necessary conditions, we are in the way of finding conclusive antecedents, if such are discoverable.

Finally, therefore, suppose that certain conditions are found to be real, which, taken together, can belong to but one object, and that the object whose reality is in question. *The inference of possibility is now replaced by the inference of fact;* our inquiry terminates in the assertion of positive reality. Thus, in several ways and degrees, reasoning in possibility subserves reasoning in necessity.

The ordinary inference of the possible is concerned, almost exclusively, with real possibility and real conditions. The abstract possibility of a thing is generally known before the commencement of inquiry; and that hypothetical possibility which is limited by the given circumstances serves only to direct our search after real conditions. Those who set out to rescue the Arctic explorers had no doubt that men could exist anywhere under certain conditions; nor had they any difficulty in imagining that their long-absent countrymen might still live under those conditions, even in the most frozen and inhospitable latitudes. But their hopes and their search were based on the belief that some of those conditions were, or had been, actual, and that others might be found to exist. They knew that the expedition had been sent out in strong and well-equipped vessels, with abundant provision of clothing, food, and fuel, and with the means of obtaining such supplies as those hyperborean regions afforded. These facts were the basis of a real possibility. Still the questions were unsettled whether the ships had proved of sufficient strength, whether provisions had not been exhausted, and whether the adventurers had succeeded in procuring additional supplies. Let us suppose, now, that the rescuing party, in their progress, should obtain, from natives or from deposited records, evidence as to one and another of these doubtful points. Plainly their hope would be confirmed, — the possibility of timely relief would become more real; it would be based on a greater number of real conditions. Finally, should they ascertain that the explorers had been lately seen, and that they had the necessary means of living for a certain time, they would press forward in the full confidence of finding them.

Inference of the possible not to be.

4. The explanations above given describe only the inference of that which we ordinarily mean by the possible. Commonly the possible means the possible to be, just as the impossible commonly signifies the impossible to be. Sometimes, however, we speak of the possible not to be, of that whose non-existence is or would be compatible with given circumstances; and our reasoning concerning this possible has a law of its own. A thing is inferred as possible to be when its conditions, so far as considered, exist or are possible; but it is inferred as possible not to be when its conditions, so far as found existent or possible, *do not constitute a logical condition.* This is the law of the possibility not to be, real and hypothetical.

We see, therefore, how reasoning in possibility (whether positive or negative possibility) is closely related to reasoning in necessity (whether positive or negative). Both modes of inference are based on the radical principle that all things exist as conditioned. Both arise from the consideration of things as conditioned; both even have a reference to *logical* conditions. The necessary to be is inferred directly from the existence of such a condition. The impossible, or necessary not to be, is inferred from the non-existence of one or more of those necessary conditions out of which every logical condition is constituted. The possible to be is inferred from the existence of necessary conditions when we can at the same time suppose the existence of a logical condition containing them. And the possible not to be is inferred from the existence of necessary conditions when we can suppose the non-existence of the logical condition of which they would be parts. These remarks show how the possible to be leads towards the necessary, and how the possible not to be leads towards the impossible.

CHAPTER XXII.

CONTINGENCY AND PROBABILITY.

Intermediate possibility defined.

1. THE only definition of possibility which seems to cover every case is that which makes it the existential compatibility of one thing with others. When the existence of a thing, so far as relates to any of its necessary conditions, is compatible with given circumstances, we have the possible to be; and when its non-existence, notwithstanding the existence of some conditions, is compatible with given circumstances, we have the possible not to be. When all the necessary conditions of a thing exist, it is both perfectly possible to be and necessary to be; and when any of these conditions do not exist, it is both perfectly possible not to be and impossible to be. But when some of the conditions exist, and we have no reason to believe the others existent or to believe them non-existent, we say that *the thing is possible either to be or not to be.* This, too, is the possibility most frequently considered.

When possibility has this double character it may be called intermediate, as lying between those possibilities, positive and negative, which belong to facts, and which consist with necessity and impossibility. This intermediate possibility is of the same nature with that already described as partial, excepting only that it has a doubleness, and looks in two directions.

The above statements, for the sake of simplicity, directly refer only to *real* possibility, in which conditions are not merely supposed, but asserted to exist. Similar statements might be made in regard to hypothetical possibility; which, however, we need not specifically discuss.

Contingency defined.

Intermediate possibility is the primary basis or ground for judgments of probability; and when it is thought of as such, it is styled contingency. For it could not be probable that there will be frost in Clinton on the 4th of March, were it not possible both that there should be and that there should not be frost in Clinton on that day. Contingency, therefore, is an intermediate possibility, for it belongs to that which both may be and may not be.

Yet contingency, as we commonly think of it, does not include all possibility of this kind, but only such as may be used as a basis for a judgment of probability. For a thing contingent, although not therein also probable, yet is possible in such a mode as to render the inquiry reasonable whether it be probable or not. Contingency, as having this suggestive force, might be called a strong possibility.

Were a beautiful poem published anonymously, search would not be made among men in general for its author, but only among a certain class of men; and although, in an extreme and abstract sense, one might say that it is contingent to a man to write poetry, yet, for the purposes of inquiry, we would limit this contingency to persons poetically gifted. In this way two forms of possibility may be distinguished, both of which might indeed be termed contingency, but the latter of which specially deserves the name.

The antecedent of possibility may be strong or weak. The former is the antecedent of contingency.

The origin of this distinction is to be found in the diverse character of the conditions on which the possibilities depend. We have seen that a thing is possible with reference to any necessary condition of its existence when that condition exists; therefore such a condition, as existing, may be termed an antecedent of possibility. But of such antecedents there are two kinds, — one weak, and the other strong. These arise, respectively, according as the antecedent of possibility does or does not approximate to an antecedent of necessity, or rather to that logical condition which every antecedent of necessity involves.

We have seen that every logical condition is composed of necessary conditions. It is also clear that *any condition which is complex is also composed of such conditions; for any condition in all its parts is necessary to that which it conditions.* Now a condition which, though falling short of a logical condition, so resembles some such condition already known to us as immediately to suggest it to our minds, may be called a strong condition, because, in the absence of any conclusive information, it suggests the thought, "The whole logical condition may exist, and the consequent therefore may be a fact." But a condition which does not thus resemble a logical condition may be called weak; for it suggests no necessitating condition, and affords no basis or starting-point for search.

If a criminal escaped from justice, it would not excite inquiry on the part of the proper officers to be told that there was a man in such or such a place. Although this would be a necessary condition of the location of any criminal, the possibility resting on it would not suggest any logical necessitant. But if they should learn that a person resembling the criminal somewhat had made his appearance in a certain city just after the time of the escape, they would say, "Possibly he is the man." In this case there would be something more than abstract theoretical possibility; there would be a strong practical possibility, a contingency, attaching itself to the man heard from, that he may be the criminal in question. The mere existence of a man somewhere is the antecedent of possibility; that of the man resembling the criminal is the antecedent of contingency. The latter, by the addition of only a few particulars, may become a logical necessitant; and the thought of such particulars is immediately suggested to the mind.

At the same time the antecedent of contingency does not of itself establish a probability, but only a strong or suggestive possibility, — a mere indeterminate chance. The question whether the chances for the supposition be one in ten or one in ten thousand, or whether they can be found to have any definite ratio to the chances against the supposition, is to be resolved by further considerations.

Probable judgment originates in two ways.

2. This indeterminate judgment of contingency, however, passes into a judgment of probability when the antecedent of contingency does not merely suggest the idea of a consequent as possible to be or not to be, but is also followed by an expectation, of greater or less strength, that a thing really is or is not; and this result may arise in one or other of two ways. Sometimes we immediately perceive the likelihood of a thing without using the conception of the chances, or individual possibilities, for and against the supposition; while at other times we employ the ratio of the chances as the basis of our judgment. Probability, when ascertained by the latter of these methods, might be called *reasoned;* and when determined by the former, *unreasoned.* Both probabilities, indeed, are asserted properly and in accordance with reason; but the unreasoned mode does not require that degree of mental strength and penetration which the estimation of chances does, and may be within the apprehension of the higher order of brutes.

So long as the officers knew only that a man resembled the escaped criminal in some general way, — for example, in being six feet high and having black hair, — this would not be a ground for expectation, but only for inquiry. Many men might answer that description. But if additional information came that the person heard from was like the criminal in having lost an eye or in being pock-marked, or in both particulars, they would say, "He is probably the man." And their reason for so judging would not be that in a large majority of previous cases such an aggregate of marks had led to the right man, and that they could therefore consciously refer to a rule of probability, *but simply that they found it easy to suppose that the marks reported would be so supplemented by others as to furnish a logical condition, or positive proof,* of the correctness of their conjecture. Because we often expect things in this way when we perceive a strong resemblance between some given antecedent of contingency and a conceived-of antecedent of necessity, probability is frequently called likelihood.

In unreasoned probability, from the consideration of one real or given antecedent of contingency, we may either assert only one consequent as probable, and its contradictory as improbable, or we may assert several alternatives of different degrees of probability. For example, a man looking at the clouds might say it is probable that there will be a shower within fifteen minutes, and improbable that there will not be one; or he might judge that either rain or snow or sleet will fall within that time, and assign different degrees of likelihood to each supposition. But in reasoned probability, in addition to the above, we consider the chances which support the contradictories or the alternatives. Therefore, to understand the reasoned mode of probable judgment, we must define clearly what we mean by chances.

The chances defined. They are consequents of equal probability

The name "chance" is sometimes given to those causes, taken collectively, which are of uncertain operation; and so we say that such or such an event has happened by chance. But the term has a different meaning when we discuss the doctrine of probability. In this connection a chance may be defined as any one out of the total number of individual events which can be supposed to follow the same antecedent of contingency, when, as a matter of fact, one, and only one, of these events must follow that antecedent when fully realized; for the antecedent of contingency may be variously completed into an antecedent of necessity, and may therefore, in supposition, have as many different consequents as there are ways of completion, — in which respect it differs from an antecedent of necessity, which can have only one consequent.

Let one hundred marbles be put into a bag, — ten black, twenty red, and seventy white. What will be the probability that if a ball be drawn out by a blindfolded boy, it will turn out a red one? Here the antecedent of contingency is the action of the boy in drawing out a marble, which we assume as certain to take place. There are now one hundred chances, or supposable individual events, each of which might follow upon the drawing; for this action may be completed by the seizure of any one of one hundred different marbles. But only one of these seizures can be actual; for only one marble is to be drawn out.

Now, as we have no means of knowing which of the marbles the boy's hand may grasp, we cannot tell which of the hundred events will take place. *Therefore we distribute our confidence among them all, and say that they are all equally likely*. And as a red marble would appear if any one of the twenty were seized, we say that twenty chances agree with and support the supposition that a red marble will be drawn out. The chances for a red marble are twenty in one hundred, or in the ratio of one to five. In this case the antecedent of contingency — that is, the grasping of a marble — is conceived or supposed to take place, and to be completed into an antecedent of necessity in one hundred cases, — that is, by the seizure of each individual ball; but only one of these modes of completion can prove to be real; and its reality, when ascertained, excludes the possibility of all the rest.

The individuality and the equality of the chances.

In the above case one might speak of only three chances, — those, namely, in which, respectively, a black, a white, and a red marble is supposed to appear; or he might call these general chances, and say that there are also one hundred individual chances. But this use of language might introduce confusion; therefore let us apply the term "chance" only to individual possibilities.

These are called individual in order to indicate our mode of conceiving them in their relation to the general suppositions. Their individuality of course is, like themselves, wholly ideal or imaginary. It is that numerical difference which the mind attaches to any objects which can even be supposed to be real; for only individuals can exist, and can rationally be imagined to exist.

It may be said, however, that the alternatives which the chances support are also supposed to exist, as the possible consequents of the antecedent, and that therefore they also must be individuals. This is true; and for this reason we say that *their generality is not that proper generality which belongs to the general notion, but only that which may belong to any individual as having some "general" character, — that is, as corresponding to some general notion.* When, with different degrees of confidence, we expect a black or a white or a red marble, or that it will rain or snow or sleet within the next half-hour, we expect individual events; but each has a general character in respect to which it may agree with a number of more specific suppositions; and because of this circumstance, these last are individuals, or individualizations, in a peculiar and double sense.

This peculiar individuality of the chances belongs to them by reason of their essential nature as the units of measure in probability. *The chances are conceivable only when a case presents a number of possible consequents, one of which must be true, and no one of which is more likely to be true than any other.* When we can conceive of such consequents, we individualize no further, but determine the probability of each general alternative by comparing the number of chances which favor it with the whole number of chances. From this it will be seen that the individuality of the chances, in any case, is very closely connected with their equality, and indeed is of no importance except as an exponent of this equality.

Intuitive and inductive probability distinguished.

3. We have now discussed the essential principles of probable judgment. But this doctrine may be elucidated should we consider one or two additional points. First, let us distinguish intuitive and inductive probability. Sometimes the chances in a case may be ascertained without any reference to a previous experience, and simply from the inspection of the individual case. Such a judgment occurs in games of chance. In the fifty-two cards in a pack, twelve are pictured, twenty-six are red, and twenty-six are black. Here we can say immediately that there are twenty-six chances out of the fifty-two that a card drawn out of the pack at random will be red; twelve out of fifty-two that a pictured card will be drawn; and one in fifty-two that the queen of hearts or of spades, or any other particular card, will be drawn. Such is intuitive probability.

Inductive probability, on the other hand, is perceived when we are judging of the more or less irregular operation of natural causes. Let the question be whether it will freeze in Clinton on next New Year's, Jan. 1, 1886. Let it be assumed that we know, from long experience, that in this latitude certain causes operate in the long run to produce frost seventy-five times out of one hundred, or three times out of four, on the 1st of January. We now conceive of four antecedents of necessity as the total number of the possible individual modifications of the antecedent of contingency, and of four possible corresponding chances, or individual consequents. According to three of these, it will be frosty; according to one, it will be mild. The chances for frost are three out of four, or three to one.

Inductive probability may be distinguished from intuitive, because the former always requires the formation of a rule and arises from the application of that rule; but intuitive probability may be perceived without any rule. Should Mr. Orr be irregularly absent from his house three days out of ten, the probability of finding him at home any particular day would be seven tenths. This would be intuitive were it based on direct information that a certain business would necessarily take him away three days, and keep him at home seven, out of the coming ten; but if it arose simply from familiar acquaintance with Mr. Orr's habits of life, it would be inductive.

Ordinary and philosophical probability distinguished.

Again, let us note that there are two modes of estimating probability, and two applications of the term "probable," — the popular and the philosophical. These conceptions may be explained in connection with the symbol of a straight line of given length somewhat minutely divided into equal parts. Let one end of the line — say that at the left hand — represent the point of absolute disbelief in some statement, and let the other end stand for the point of absolute or certain belief in this statement. The first of these points, of course, will also be that of absolute belief in the contradictory of the statement, and the other that of absolute disbelief in this contradictory. Let us suppose the line to be divided into one hundred equal parts. Should we now perceive that there is just one chance in one hundred for the truth of the statement, and ninety-nine against it, the point indicating our degree of confidence would be one grade from the left-hand, or negative, end of the line; but if there were ninety-nine chances for the truth of the statement and only one against it, the point would be within one grade of the right-hand, or positive, end. The central point of the line would indicate that degree of belief or confidence entertained when the chances in favor of the statement are fifty out of one hundred, — that is, when the chances are fifty for, and fifty against, the statement. This is the point of absolute doubt or uncertainty.

Now at this point, in accordance with two different modes of thought, we may say either that there is or that there is not probability. Philosophically, there is a probability of fifty in a hundred, or of one in two, because, *in the wide scientific sense, we say a thing is probable so far as it has any chances at all in its favor, and improbable so far as it has any chances at all against it.* According to this, everything probable has some degree of improbability, and everything improbable has some degree of probability. But according to ordinary language, an event which has only fifty chances in one hundred in its favor has no probability at all. *Commonly, that only is said to be probable which has a majority of the chances in its favor, and that only is improbable which has a majority of the chances against it.* According to this, the probable is never the improbable, nor the improbable the probable.

In the wide, or philosophical, sense absolute doubt has just half the confidence of certainty; our expectation is equally divided between two consequents, one or other of which must certainly exist But according to the common use of terms, doubt is the starting-point from which a belief, whether positive or negative, commences a progress to a certainty which is correspondingly positive or negative.

Philosophically, twenty-five chances in one hundred give one fourth the confidence of certainty; fifty chances, one half; and seventy-five, three fourths; and these fractions symbolize these degrees of belief. But, in ordinary language, twenty-five chances in one hundred give half the confidence of negative certainty or of utter disbelief, and seventy-five chances half that of positive certainty; and the fractions one fourth and three fourths would symbolize a disbelief and a belief, each of which had half the confidence of certainty. Philosophically, the addition of one chance in the hundred would add one hundredth part of the confidence of certainty to the strength of our belief; according to the ordinary mode of thought, that addition would, as the case might be, either detract one fiftieth part of the confidence of certainty from the strength of disbelief, or add one fiftieth part of that confidence to the strength of belief. Our common conception of probability is more complex than that which we have termed philosophical; but it is necessitated by the practical question which continually presents itself, whether or not some statement has the majority of the chances in its favor.

4. When probable judgments are combined, interesting questions arise concerning what is called "the calculation of chances." Such questions belong to logic rather than to the general philosophy of mind.

No degree of probability can reach absolute certainty.

We shall now add only one other remark respecting the nature of probability. It is that probable belief so differs from knowledge, or absolute certainty, that the latter can never be derived or developed from the former. For the ground of probability, though closely related to that of certitude, is distinguished by a radical peculiarity. Probability, like possibility, may prepare for knowledge, and be displaced by it, but it never can become the absolute certainty of fact. No matter how extreme the likelihood of a thing may be, — no matter how small the proportion of the chances against it to the chances for it may be, — still, so long as a thing is probable, there is a possibility of the opposite. Were there a thousand millions of chances for an event and only one against it, yet that one would render its non-occurrence perfectly possible.

We must, therefore, distinguish between that strong expectation which is sometimes called moral certainty, and the absolute confidence either of immediate cognition or of necessary inference. Any statement which conflicts with the perfect knowledge of reality must be unconditionally rejected; but a statement, however improbable, if it be not thus opposed to truth, should receive consideration if it be made seriously by intelligent persons. It would be very unlikely that a traveller should find a gold watch in the midst of the deserts of Sahara, but if he really found one all the antecedent improbability would disappear before the certainty of fact. We firmly believe that the sun will rise to-morrow, — there is no probability that it will not; but there is no impossibility and no absurdity in the contrary supposition.

CHAPTER XXIII.

ATTENTION AND ACQUISITION.

1. HAVING considered the leading topics concerning thought and belief, — the primary powers of mind, — we turn to contemplate those secondary powers whose operation modifies the workings of the primary. They may be enumerated as *attention*, *acquisition*, *association*, *synthesis*, *analysis*, *abstraction*, and *generalization*. Such, at least, are the powers whose modifying influence calls for special study.

Psychical energy, *i. e.*, mental force as exerted.

We begin with *attention*, — that is, the power of attention; for, apparently without exception, our faculties receive names which yet more properly designate the exercise of these faculties.

Every human spirit has a certain amount of psychical energy, or force, which is constantly more or less exercised in the activities of the soul's life, and especially in the activity of thought. This energy can be distinguished from the faculties or powers into which it enters. As general muscular strength can be distinguished from that power of involuntary motion possessed by the heart and other organs, — from capabilities such as are shown in speaking, walking, running, handling, and so forth, — from that acquired ability exhibited by experts in various arts and accomplishments, — and from the power of performing, without thought, actions which through habit have become automatic, — so we distinguish psychical energy in general from the specific powers in which it is manifested. The reason of this is that the constitution of the soul gives a peculiarity of operation or function to every special power. We therefore distinguish from the faculty of thought that psychical energy necessarily belonging to it.

Yet this distinction does not of itself justify the conception of a faculty different from thought. It only brings into prominence the fact that a certain force is employed in all thinking. This energy varies in different persons, and in the same person at different times. The ideas of some men are fresh and vigorous, those of others slow and obscure; while the same person sometimes apprehends with ease, at other times with difficulty. All this does not indicate any specific faculty; it is simply a result of constitutional conditions and of general laws under which intellectual life is experienced.

Attention defined. A special and determinate exertion of the power of thought. Involves a power of detention.

There is, however, an exertion of energy in connection with thought which indicates what we may properly style a faculty; for it is a determinate employment of power, and it accomplishes a special function. By what seems a simple, ultimate law of spiritual activity, the soul can address itself with peculiar energy to the observation of any object, or the consideration of any subject, which it may desire more fully to comprehend. The power thus exercised is called *attention*. Hamilton defines attention as "the concentration of consciousness on a smaller number of objects than constitute its widest compass of simultaneous knowledge." This description may be accepted with the addition that the effort of attention seems to increase, as well as to concentrate, the amount of mental force exercised at any one time. By "consciousness," in the above extract, we are to understand the general power of thought; and by "knowledge," thought in general. For we can concentrate and stimulate the power of thought when there may be no real objects whatever.

This special exertion of the power of thought in connection with some object or idea, or set of objects or ideas, is the essential constituent of attention. A sentinel, keenly vigilant for every indication of danger, might be said to exercise attention in the most general way possible, as his watchfulness would include all objects within the reach of his senses. The concentration of thought, though existing to some extent, would not be a prominent feature in such a case. But ordinarily the elements or objects to which our attention is directed are of a limited number, so that the special exercise of energy in connection with them has the effect of abstracting the force of thought from other objects; for every human spirit has only a limited amount of energy.

The successive consideration of objects, however vigorous it may be, cannot properly be called attention; it is simply energetic thought. In attention mental action is directed continuously to the same object or objects. The earnest consideration of subjects, successively, includes successive acts of attention. This faculty involves, as a subsidiary and constituent part of itself, *a certain power of mental detention by which the same act of observing or thinking is repeated or prolonged.*

Is attention a voluntary act? Is it truly an intellectual faculty?

2. The most important point in the doctrine of attention is that the operation of this faculty is to a considerable extent subject to the determinations of the will, that power of choice which is natural to the soul. According to Dr. Reid, "Attention is a voluntary act; it requires active exertion to begin and continue

it, and it may be continued as long as we will." Professor Stewart coincides in these statements; Hamilton controverts them. He says that there are three degrees of attention: "the first a mere vital and irresistible act; the second an act determined by desire, which, though involuntary, may be resisted by our will; the third an act determined by a deliberate volition." To us a doctrine intermediate between the views of these eminent men seems reasonable.

We agree with Hamilton that there is a vital and irresistible exercise of energy in connection with all thought and perception, but do not think that this should be called attention. On the other hand, choice, properly so called, is not always necessary to the act of attention; this is sometimes controlled by desires or motive habits which prevail against our formal volitions. How often people say that they cannot help thinking of such and such objects! How often we find ourselves earnestly considering some topic simply because we have become interested in it, without any deliberate determination! Such facts indicate that attention is exercised in accordance with that motivity which may be the prevailing one at the moment, whether it be mere unformulated desire, or whether it have the more complex character of will, or purpose.

In this connection we may consider a question which has been sometimes raised,—namely, whether attention, a power the exercise of which confessedly originates in the motive part of man's nature, is properly an intellectual faculty at all. If by the mental faculties we are to understand those only which are the immediate fountains of thought and belief, then neither attention nor any other of the secondary powers can be enumerated in this class; but if that is an intellectual faculty whose proper function is immediately to affect and modify the main work of the mind, then certainly all the secondary powers may be thus named.

This, however, must be allowed, that attention has two principal functions, and in this respect is unlike the other subsidiary powers, which have each but one. In addition to the modification of thinking and to contributing in this way to intellectual results, attention performs a practical part in connection with the consideration of motives, and is thus *the principal instrument in the self-control and self-determination of spirit.* Whatever government the will exercises over psychical life in general is exerted through this power, just as its dominion over physical life depends upon muscular energy. Attention, therefore, has a twofold character: in one use it is an intellectual faculty; in another it is part of the practical faculty,—the faculty of action, as distinguished from that of thought. Attention is a mental faculty only so far as it modifies the working and affects the results of the primary powers of mind. But we should notice that it retains this character, more or less, even while helping to constitute the faculty of action.

The importance of the faculty of attention, and of its cultivation and employment.

The great importance of attention, in the system of our mental faculties, is evident from its very nature. It is a power whose use is at once most general and most indispensable. All those facts, whether of the material or the spiritual world, which constitute the original basis of thought and knowledge, are definitely seized and ascertained only through attentive observation and reflection. Moreover, those faculties of recollection, reason, and imagination, which elaborate the materials possessed by the mind, demand the continual exercise of attention. Whenever this power intermits its action, mental progress ceases. Attention is the action of the frame which holds in place the warp of that cloth which the subtile machinery of mind is weaving. When this frame performs its part imperfectly, confusion immediately ensues. Attention also has an important relation to memory, though less directly than to the intentional operations of mind. The permanent acquisition of thought depends greatly, if not entirely, on the vigor with which it may be first entertained, which vigor is controlled by attention. Should we desire to impress some beautiful scene upon the mind, or to commit some valuable fact or truth to memory, we must regard it earnestly.

Such being the case, it is plain that this power should be assiduously cultivated by those who would hope for any worthy intellectual attainments. And in this we should be encouraged by the consideration that no faculty admits of growth and development more than attention. Every faithful scholar can testify of that wonderful increase in the ability for mental application which results from a thorough course of study. The opinion of some that "genius is nothing but a continued attention"—"a prolonged patience"—is an extreme one. But beyond question this faculty is an essential part of all true genius, and it is that element of mental greatness most within the reach of honest endeavor; it is also that of which great men themselves have been most fully conscious.

Sir Isaac Newton, when complimented on his marvellous achievements, replied that if he had made any discoveries, it was owing more to patient attention than to any other talent. Dickens ascribed his success to a very painstaking study of the characters and details of his stories. Sometimes, with eminent men, the abstraction of mind resulting from intense application to favorite subjects has rendered them well-nigh insensible to passing events. Archimedes was not aware of the storming of Syracuse till he received his death-wound from soldiers whom he forbade to disturb his circles. Cardan, the illustrious mathematician, when on a journey, forgot his way and his object. The driver, asking whither he should proceed, received no answer, and at nightfall the carriage came to a stand directly under a gallows. On the day of his wedding Budæus forgot everything, and was wakened to the life of the external world by an embassy from the marriage party, who found him absorbed in the composition of his "Commentarii."

The great power of attention to modify the inclinations and purposes of the soul, and ultimately the whole motive character, is a topic worthy of consideration. The direction of thought to right rules and reasons for one's conduct in life, the contemplation of virtuous examples, the cherishing of honorable and dutiful plans and conceptions, and the rejection of ideas which solicit to evil, are the immediate causes of pure and elevated experience; the admission of sinful thoughts, the indulgence of vile fancies and degrading memories, and the study of wicked schemes, are the sure means of spiritual ruin. "I would as soon," said Dr. Thomas E. Thomas, the eloquent president of Hanover College, — "I would as soon think of putting a bottle of hell-fire into the hands of my children as a copy of the works of Lord Byron." But, rightly, the discussion of this topic belongs to moral philosophy.

The power of acquisition defined.

3. Having discussed the faculty of attention, it seems proper that we should next consider the faculty of *acquisition;* for while the former of these is the condition of the present use of the materials of thought, the latter is the condition of our subsequent use of them. Thus the development of mental life is equally conditioned on the exercise of these two powers.

Moreover, to a great extent, acquisition is dependent on attention; for the greater the energy with which any object may be contemplated, the longer will the ability to think of it again remain among the possessions of the mind.

But here a difference is to be noticed between material and mental acquirements. The former are substances of various kinds, such as gold, silver, lands, cattle, houses, goods, and so forth, — or if not such things, at least a share or a right in them; the latter are accessions of ability, whereby we are enabled to repeat acts of thought, belief, or knowledge which we have once experienced. When we speak of the mind committing ideas to memory, or receiving and storing up useful knowledge, or exercising the power of acquisition, our language is figurative; it means simply that the mind is qualifying itself for the future reproduction of its present intellectual activities. This power operates more or less in connection with all thought, or mental action; but being greatly dependent on attention, and thus subject to the direction of the will, it is often employed on purpose, and on this account may be styled a faculty. Speaking of the power of acquisition, we merely express the idea of a mental energy; speaking of the faculty of acquisition, we signify that the energy is or may be that of intentional doing. Every studious and inquiring person continually exercises this faculty, and therefore satisfies his desire to know, and informs himself for the right conduct of his affairs.

We have included the power of *detention* in the faculty of attention as a subordinate yet essential part. In doing so, we followed a rule which naturally and ordinarily controls the formation of our conceptions, — namely, not to conceive and speak separately of an entity invariably accompanying some other more prominent object when there is no need for a separate conception. In such cases the mind simply enlarges its notion of the more prominent object, so as to include within it that of the accompaniment. When this rule can be observed without injury to philosophic progress, the neglect of it savors of undue refinement.

Hence, also, within the faculty of acquisition we place a power without which this faculty would be useless, and whose function is to carry on the work which acquisition begins. The potency to which we refer operates in passive resistance rather than in any positive action, and may be named *the conservative*, or *retentive*, *power of the intellect.* It manifests itself in preserving, against detractive influences, the tendency of an acquired and latent idea to reproduce itself on proper occasion.

This function of mind is easily distinguished from that whereby an idea or belief is first received among the possessions of the soul; yet this distinction does not justify the conception of two faculties. We prefer to think of acquisition and conservation as together constituting a compound secondary power by which our thinkings are rendered ready for future reproduction. This faculty might be named either acquisition or conservation, according to the element more prominent in one's thought; but, ordinarily, one name should suffice for both powers, as the functions of both naturally constitute a unity.

No general agreement has been reached by philosophers in regard to the mode in which the acquisitive and conservative power produces its results; but the fact of its action must be accepted as a radical truth. The putting away of ideas in a storehouse; the writing down of thoughts upon the tablet of memory; the reception of flying appearances, species, or images which collect in the thinking soul, — these and such expressions record and illustrate the fact, but do not explain it.

Theories explaining acquisition and reproduction. Latent energies. Gassendi and Locke.

4. The majority of writers do not attempt any account of this matter. Those who do may be divided into three classes: First, there are those whom two famous philosophers of the seventeenth century, Locke and Gassendi, may represent. These hold the doctrine of latent energies; they teach that tendencies are produced in the mind which remain inactive till proper encouragement for their action may occur. Gassendi compares the mind to a sheet of paper capable of receiving one series of folds after another, and of being smoothed out so that the folds become invisible, and on which, if any fold be renewed, the others connected with it also reappear. The chief thought suggested by this illustration is that every fold retains a tendency to renew itself, so that the pressure of a moving finger or point, on the line of any fold, may encourage this tendency, and cause the fold to reappear; and a pressure near the place where two or more folds have crossed each other will act in a similar way as to several folds, though more successfully in regard to some than to others. This pressure may typify the influence of attentive thinking as operating upon the cognate but unconscious reproductive tendencies acquired in previous thinkings.

According to another figure, past thoughts have been compared to sentences written with an ink which, when dry, loses its visibility, but which recovers this again whenever the writing may be subjected to a certain degree of heat.

Locke, in expressing his views, speaks of the memory as the storehouse of our ideas. "But," he says, "our ideas being nothing but actual perceptions in the mind, which cease to be anything when there is no perception of them, this laying up of our ideas in the repository of the memory signifies no more but this, that the mind has a power in many cases to revive perceptions which it has once had, with this additional perception annexed to them, — that it had them before. And in this sense it is that our ideas are said to be in our memories, when, indeed, they are actually nowhere, but only there is an ability in the mind when it will to revive them again, and, as it were, to paint them anew on itself, though some with more, others with less, difficulty, — some more lively, and others more obscurely."

The principal point in the view of Locke and Gassendi is that mental phenomena occur and then wholly disappear, while yet they leave in the mind a tendency which very frequently, upon the occurrence of certain conditions, reproduces them. This doctrine is reasonable, and conformable to facts.

Unconscious activity. Schmid. Hamilton.

A second class of thinkers, who hold that the mind never ceases from any definite mode of action which it has once begun, explain the reproduction of thought by the theory, which Leibnitz originated, of unconscious psychical activity. The German metaphysician Schmid, followed by Hamilton and others, thus applies that theory. "The problem," he says, "is not how a mental activity endures, but how it ever vanishes. . . . The solution is to be sought for in the theory of obscure or latent modifications. The disappearance of internal energies from the view of internal perception does not warrant the conclusion that they no longer exist. . . . Only the more vivid changes sufficiently affect our consciousness to become objects of its apprehension; we consequently are conscious only of the more prominent series of changes; the others remain for the most part latent." Every new cognition draws to itself a chief part of the general energy or force of the intellect. "This force in the same proportion is withdrawn from the other earlier cognitions; and it is they, consequently, which must undergo the fate of obscuration." These latent — or, to speak more properly, insensible — cognitions become sensible again upon a stimulus received from some kindred exercise of energy. This theory of acquisition, like that of unconscious mental activity on which it is founded, is unsupported by any basis of fact. Theories which have their chief strength in their consistency with other theories, similarly situated in this respect, can claim our regard only as improbable hypotheses of more or less ingenuity.

Materialistic hypotheses. Comte. Spencer.

Finally, materialistic philosophers, such as Auguste Comte and Herbert Spencer, as also those men of science who accept their leadership, regard the acquisition, retention, and reproduction of thought as being nothing more than closely related modes of nervous action. According to Comte, "The positive theory of the intellectual and affective functions consists in the study, rational and experimental, of the various phenomena of internal sensibility which are proper to the cerebral ganglia. . . . It therefore is only a simple prolongation of animal physiology, properly so called." According to Spencer, all mental phenomena are feelings; and "the degree of the revivability of a feeling depends on the extent to which the nervous centre concerned was capable of undergoing much molecular change, and evolving much of the concomitant feeling when the original excitation was received." In addition to this he says: "Other things equal, a given past feeling may be brought into consciousness vividly, faintly, or not at all, according as the nervous centre concerned is or is not well repaired and well supplied with blood at the moment the remembrance is suggested." Thus reproduction is all accounted for by the excitation of faint tendencies to molecular action collected in the nervous system.

In perusing the writings of our modern materialists, one marvels at the boldness with which the secret workings of Nature are portrayed, as if these had been accurately observed and analyzed. The ascertained facts of physiology are indeed ingeniously used, but along with this there is a liberal intermixture of conjecture. And yet the insurmountable objection to materialistic theories is not the scantiness of the facts on which they are based. The difficulty is one which no supply of facts can be expected to remove. It is the impossibility of accepting any form of materialism, even though all the physiological conjectures with which it may be accompanied should be admitted. However in the present life certain changes and states of body may condition and affect the changes and states of spirit, we can never conceive the latter to be identical with the former.

When we endeavor to think of thoughts, emotions, and other psychical experiences as simply forms of the action of molecular forces, the mind refuses to act, or rather it acts in the way of absolute denial. We cannot even conceive of spiritual phenomena as wholly caused by such forces; for they reveal powers whose operation, however modified by physical influences, is wholly *sui generis*. Noticing the effects of severe study, of weighty care, of strong emotion, and of various modes of mental occupation upon one's bodily state, as also our direct use and control of muscular power, we perceive that the soul acts upon the body as truly as the body acts upon the soul. Let nervous action be explained as it may, we must hold to the distinct existence of spirit and its faculties.

The dependence of acquisition and reproduction upon the action of the brain. Extraordinary instances. Somnambulism.

5. At the same time it is plain that psychical life is experienced by us under physical conditions, and that an important though obscure department of science concerns the operation of these conditions. In particular it is to be observed that none of our mental powers exhibit more dependence upon the state of the body than do those of acquisition, conservation, and reproduction. Every one knows how difficult the study of what is new, and the recollection of what is old, become when one is either weak or exhausted; these things are easy when, as Spencer says, the nerves are in good repair and well supplied with blood. The effect of anæsthetics, such as chloroform, of narcotics, such as morphine, and of

stimulants, such as alcohol, is very immediate upon the nervous system, and through that upon psychical action, which in this way may be increased or decreased, or made irregular and irrational, or suppressed entirely.

Every medical practitioner is familiar with the power of bodily diseases and injuries to affect the intellect. Fevers produce temporary delirium; paralysis weakens the memory; apoplexy and even old age sometimes destroy it. A blow on the head produces insensibility; a disease of the brain, mental incompetency or, it may be, absolute lunacy or mania. Such truths as these are not to be overlooked: they show how greatly — doubtless for wise ends — the present life of the human spirit has been subjected to corporeal conditions.

Various extraordinary instances of the effect of disease upon the faculties of acquisition and reproduction have been noticed in philosophical writings. Coleridge, in his "Biographia Literaria," tells of a maid-servant in Germany, who took ill of nervous fever. During her delirium she recited passages from the Latin, Greek, and Hebrew languages, acting as if she were inspired by some good or some evil spirit. Her sentences, being carefully taken down, were found to be extracts from classical and rabbinical writers. After much inquiry it was ascertained that she had once lived in the service of an old and learned pastor who had been in the habit of repeating aloud passages from his favorite authors as he walked in the hall of his house. The sound of the words, without their meaning, had lodged in the girl's memory, and had been recalled through the excitement of the fever.

Dr. Abercrombie tells of a boy who, when four years old, received an injury on the head. During the operation of trepanning he was apparently unconscious, and after the operation he remembered nothing of the attendant circumstances; but after the lapse of eight years, and in the delirium of sickness, he accurately recounted the particulars of the transaction, telling who were present, how they were dressed, and what parts they severally performed.

In like manner the Rev. Timothy Flint records of himself that during a malarial fever he repeated long passages from Homer and Virgil, which he had never formally committed to memory, and of which, before and after the fever, he could not recite any considerable portion. Such cases justify *a conjecture that the nervous excitement of certain diseases exerts a repressive or overwhelming influence upon those tendencies to reproductive thought which are stronger because more recent, but acts as a proper stimulus upon older and weaker tendencies.* This same idea is suggested by a phenomenon frequently noticed, — namely, the recovery of a disused language, while one of later use is lost. Dr. Rush, in his "Medical Inquiries," says that he attended an Italian, who died of yellow fever, who at first spoke English, after that French, and towards his end Italian only. He records, also, the statement of a Lutheran clergyman that old German immigrants, on their deathbeds, often prayed in their native tongue, though some of them certainly had not spoken it for many years. President Porter relates that a favorite pupil of his, the son of a missionary in Syria, but who had spent much of his life in the United States, spoke Arabic, an almost forgotten language, during his last hours. His disease was yellow fever.

Another class of observations favor *a conjecture that the brain or its molecules may be made to assume a state so related to another state replaced by it, and by which in turn it may itself be replaced, that the reproductive tendencies connected with either state are wholly or in part disabled from operating during the continuance of the other state.* With reference to each other, these states might be styled *allotropic.* The case of the Rev. William Tennent, a distinguished Presbyterian clergyman of New Jersey, is one in point. After severe sickness he was for a time supposed to be dead. He recovered, and was then found to have lost all his previous acquisitions, even to the memory of the alphabet. On a sudden he experienced a violent pain in his head, and instantly regained his former intelligence and information.

The case of a lady mentioned by President Porter differs from the foregoing in that her lost knowledge never returned. This lady fell into a severe illness by reason of protracted mental and bodily sufferings experienced during a storm at sea and a shipwreck; after which, although she was apparently restored to perfect health, it was found that the greater part of her acquired knowledge was gone. An analogous case is mentioned in Tupper's "Inquiry into Gall's System of Phrenology:" "A man was brought into St Thomas's Hospital, who had received a considerable injury on the head, from which he ultimately recovered. When he became convalescent, he spoke a language which no one about him could comprehend. However, a Welsh milkwoman came one day into the ward, and immediately understood what he said. It appeared that the poor fellow was a Welshman, and had been away from his native country about thirty years. In the course of that period he had entirely forgotten his native tongue, and acquired the English language; but when he recovered from his accident, he forgot the language he had been recently speaking, and acquired the knowledge of that which he had originally acquired and lost."

A more remarkable instance than any already mentioned is detailed in a report of Dr. Dewar, read before the Edinburgh Royal Society in February, 1822. It was that of a girl sixteen years of age, who during a period of more than three months was frequently the subject of a somnambulistic affection. During the continuance of each attack of this affection she performed and witnessed many things of which, upon returning to her more normal state, she retained no recollection. Dr. Dewar gives the point of chief interest in her case as follows: "*The circumstances which occurred during the paroxysm were completely forgotten when the paroxysm was over, but were perfectly remembered during subsequent paroxysms.*" The report sustains this statement by a number of facts. One Sunday she was taken to church by her mistress while the paroxysm was on her. She shed tears during the sermon, particularly during the account given of the execution of three young men at Edinburgh, who had described in their dying declarations the dangerous steps with which their career took its commencement. When she returned home, she recovered in a quarter of an hour, was amazed at the questions put to her about the sermon, and denied that she had been at church. But the next night, on being taken ill, she mentioned that she had been at church, repeated the words of the text, and, in the hearing of Dr. Dyce, her physician, gave an accurate account of the tragical narrative of the three young men." This girl complained of confusion and oppression in her head at the coming on of each paroxysm.

Combe, in his "Phrenology," tells how a Dr. Abel informed him of an Irish porter who forgot, when sober, what he had done when drunk; but being drunk again, recollected the transactions of his former state of intoxication. "On one occasion, being drunk, he lost a parcel of some value, of which in his sober moments he could give no account; but when next intoxicated, he recollected that he had left the parcel at a certain house, and, there being no address on it, it had remained there safely, and was got on his calling for it." Phenomena similar to the above take place in connection with that somnambulism produced by what is called animal magnetism; the person magnetized thinks and acts with very little if any reference to the life and thoughts of his normal state.

We shall conclude our illustrations with an account presented by Dr. Mitchell to the Rev. Dr. Nott, and published in the "Medical Repository" of January, 1816, and which concerned a case still in progress at the date of that publication. Major Ellicott, then professor of mathematics at West Point, had a relative in western Pennsylvania, named Miss R——, who had arrived at adult age with a good bodily constitution and excellent health. She was a well-educated lady, and had a capacious and well-stored memory. "Unexpectedly, and without any forewarning, she fell into a profound sleep, which continued several hours beyond the ordinary term. On waking she was discovered to have lost every trait of acquired knowledge. Her memory was *tabula rasa;* all vestiges, both of words and things, were obliterated. It was found necessary for her to learn everything again. She acquired by new efforts the arts of spelling, reading, writing, and calculating, and gradually became acquainted with the persons and objects around, like a being for the first time brought into the world. In these exercises she made considerable proficiency; but after a few months another fit of somnolency invaded her. On rousing from it, she found herself restored to the state she was in before the first paroxysm, but was wholly ignorant of every event and occurrence that had befallen her afterwards. The former condition of her existence she now calls the 'old state,' and the latter the 'new state;' and she is as unconscious of her double character as two distinct persons are of their respective natures. During four years and upwards, she has undergone periodical transitions from one of these states to the other. The alterations are always consequent upon a long and sound sleep. In her old state she possesses all her original knowledge; in her new state only what she has acquired since. If people be introduced to her in the old state, or in the new state, to know them satisfactorily, she must learn them in both states. And so of all other matters. In the old state she possesses fine powers of penmanship, while in the new she writes a poor awkward hand, not having had time to become expert. Both the lady and her family are now capable of conducting the affair without embarrassment. By simply knowing whether she is in the old or in the new state, they regulate the intercourse and govern themselves accordingly."

With respect to this whole subject of the dependence of mental upon bodily states, two points are noteworthy.

First, there is abundant evidence that mental action during the present life is dependent upon, and influenced by, the condition of the brain. By various affections of this organ the action of thought is either stimulated or retarded, or limited or deranged, or even altogether suspended. In what way these results are produced is entirely unknown; the reality of them is beyond question.

Secondly, there is no proof that those peculiar modes of action which we style *mental* are, in any proper sense, the product of brain forces. On the contrary, they differ so utterly from physical or molecular activities, that we necessarily ascribe them to an agent whose character and powers are suitable for their production, — that is, to an immaterial and spiritual agent, which agent is revealed to us in consciousness.

And so far as we can see, the powers of mind, while greatly subject to corporeal conditions, have also to a yet greater extent *an independent operation of their own.* Acting within the limits of their bodily conditions, they immediately and of themselves produce an endless variety of life and experience. At least such an opinion, though not necessary to the doctrine of the distinct existence of spirit and its powers, seems more probable than that every individual thought has a cerebral state or change specifically corresponding to it, either as cause or as effect; for we cannot but suppose that the principal factor in mental life is mind.

CHAPTER XXIV.

THE PRIMARY LAWS OF ASSOCIATION.

1. THE operation of the secondary powers can be distinguished from that of the primary powers only by a somewhat subtile analysis. This was to be expected; because the secondary powers have no separate function, but only the office of modifying the workings of the primary. On the other hand, after that distinction has been made, one must guard against a tendency to think of any secondary power as if it had independent existence and operation; for such a tendency arises whenever we make the indissoluble parts or elements of some whole the objects of analytic thought and speech. The secondary powers are simply modifications of the general faculty of intellect, by reason of which it has various peculiarities of action. Yet these peculiarities and their causes are worthy of separate consideration.

Association, or suggestion, defined and illustrated. Its importance.

Having discussed attention and acquisition, we turn to *reproduction.* This power does not differ essentially from the re-presentative potency, the two being really the same thing as viewed in different relations. A choice of terms being thus possible, we favor "reproduction" as generally, if not always, preferable to "representation." Not only is the latter term ambiguous, its philosophical differing from its ordinary signification, but it is also, in its philosophical meaning, suggestive of the mistaken theory that the object of a thought is always in some sense literally presented again when the thought is reproduced.

But even the term "reproduction" has not occupied so large a place in mental philosophy as the term "association;" and this for a good reason. For when we consider the reproductive power with reference to the fundamental conditions or laws which regulate its action, we do not call it reproduction, but association, or suggestion; and most of the questions concerning this power pertain to it under this light. We have considered the fact that the mind has a reproductive potency, and have discussed certain theories connected with that fact. We shall now endeavor to determine those laws of association, or suggestion, which govern reproductive thought.

That such laws exist and operate, cannot be denied. How quickly the name of Christopher Columbus suggests the discovery of America, and that of Martin Luther the Reformation of the sixteenth century, and that of Alexander the Great the conquest of Asia by the Greeks! How many delightful memories cluster around the home of one's childhood! What solemn thoughts inhabit the church of God! How naturally patriotic reflections arise when the Declaration of Independence is read in our hearing! And what searching questions present themselves as we give heed to the commands of the Decalogue, or to our Saviour's "Sermon on the Mount"! Nothing can be more evident than that a thought, consciously experienced, tends in some way to suggest and recall other thoughts.

Moreover, this function of the suggestive potency is equal in practical importance to that of the primary powers of intellect. If the reproductive tendency did not exist, or even were it not qualified by a tendency causing our thoughts to observe some natural connection, the recoveries of reminiscence, the constructions of imagination, and the investigations of reason would all be things impossible. But immediately after the first awakening of the infant mind in sense-perception, and the new cognition of things visible and invisible, the associative power begins to act, and thenceforward works incessantly. And when the mind, of itself, thus reproduces its ideas, and that in some sort of connection, only patience and care are requisite in order to the effective use of the powers of thought; for, as Professor Stewart observes, "when we dwell long on the same idea, we obtain all the others to which it is in any way related, and thus are furnished with materials on which our powers of judgment and reasoning may be employed."

The terms "association" and "suggestion." A power, not a faculty.

To some authors "suggestion" seems a more befitting term than "association," to express the action of the power under consideration; and not without cause. When we say that one thought suggests another, we mean that the idea of one object excites, and introduces to the attention, the idea of another object; this is a more essentially important result than that association, or union, which takes place when two or more thoughts are first experienced together. Suggestion is conditioned upon association; both may be considered operations of the same power, as they are elements of the same general function. But it is in suggestion that the office of the power is accomplished.

We more naturally speak of the power than of the faculty of association, or suggestion, because this potency, considered in itself, is a factor which works without the guidance of the will. Frequently, indeed, it is controlled and employed so as to contribute to some specific and intentional intellectual undertaking; but it is then regarded as a subordinate element of some larger faculty, rather than as an independent power. Of itself it is not a complete instrument.

The history of opinions. The schoolmen. David Hume, Aristotle.

2. When the working of this power first engaged the attention of modern philosophers, the succession of our thoughts could not be seen to observe any law. Some of the schoolmen say that the "resuscitation of ideas," the "excitation of the species," is "the very greatest mystery of all philosophy." The younger Scaliger, the learned son of a most learned father, said, "My father declared that of the causes of three things in particular he was wholly ignorant, — of the interval of fevers, of the ebb and flow of the sea, and of reminiscence." In these words he expressed the ignorance, not only of himself and of his father, but also of the age in which they lived. Nor have these mysteries even yet been wholly solved.

For a long time after the revival of letters the ancient doctrine of *ideas* and of *species* continued to exercise great influence. Our conceptions were given a kind of existence independent alike of the mind and of the objects to which they correspond. Most errors which exhibit lasting vitality derive their strength from some natural and permanent but fallacious ground of belief, rather than from any historical origin or advocacy. The false theory which we have just stated, was favored, in modern no less than in ancient times, by the structure of language, in which our conceptions are given an apparent independence of existence and operation, and by our natural tendency to regard things separately conceived of as being also separate and substantial entities. It was not till after the time of Locke that ideas were clearly shown and seen to be but exercises of the intellectual power, and not at all things endowed in themselves with attraction or with any other potency.

Such being the case, the causes of mental association and suggestion were first sought for in our ideas themselves as the representative appearances of objects, and were ascribed to them as having that character. Moreover, as the succession of ideas is the phenomenal expression of the operation of the suggestive power, and exhibits certain uniformities in consequence of the orderly working of the power, it was to be expected that observation sooner or later would detect these uniformities and enunciate them as laws. This task was undertaken by a famous Scottish philosopher. David Hume, in the early part of the eighteenth century, by his clear and elegant writings, showed to what an extreme a logical scepticism might be carried by one who based his reasonings on the doctrines of a defective philosophy. Rejecting as untrustworthy the conceptions of substance and power and force, he made all phenomena to consist only in impressions and ideas. His writings incited many thoughtful minds to investigate the ultimate grounds of human belief. Hume, like his English contemporary, Hartley, accounted for every mental process by the succession of ideas under the laws of association. These laws he reduced to three: the first referring to *contiguity in time or space;* the second to *similarity;* and the third to the relation of *cause and effect*, which, however, Hume explains to be simply uniformity of succession.

That such laws are constantly exemplified, no one can deny. Things which have been thought of as closely related in time or in space, or as united by the bond of cause and effect, or which are similar, often suggest one another. How naturally, when some great man, such as Cæsar, is mentioned, we recall the principal actors and events of his time; or when some noted place is named, such as the Roman Forum, we think of the magnificent monuments with which it was adorned, and of the important transactions which transpired within it! Or, contemplating Cæsar and the Forum, we are led to consider the causes which destroyed Roman liberty, and which put an end to Roman eloquence. The thought of Cæsar, again, through the principle of similarity, suggests other instances of successful usurpation; as the Forum brings to mind other spheres for the exercise of popular ability. Hume claimed to be the first who enunciated these laws of association, and probably was the first by whom they had been discussed at length. Aristotle, however, in his treatise concerning Reminiscence, teaches that "we search for a next thought by thinking from the present or some other (time), and from the similar, or the contrary, or the proximate," —"*νοήσαντες ἀπὸ τοῦ νῦν ἢ ἄλλου τινὸς, καὶ ἀφ' ὁμοίου, ἢ ἐναντίου, ἢ τοῦ σύνεγγυς.*" Thus he gives the relations of *nearness in time*, of *similarity*, of *contrariety*, and of *vicinity*, as the fundamental conditions, at least of intentional recollection.

A comparison of views. The relations of cause and effect and of contrariety specially discussed.

3. Comparing Hume with Aristotle, we find that the modern philosopher mentions the relation of cause and effect, which is not named by the ancient one; while Aristotle specifies contrariety, which is not in Hume's enumeration. In each case a reason can be given for the omission. On the behalf of Aristotle it may be denied that the relation of cause and effect could, of itself, form a suggestional law, if the objects connected by it had not been previously considered as existing together or in immediate succession. No causal object could suggest any resultant object which had not previously been seen as closely related to it in time and space; and so, conversely, as to the resultant object.

This denial, however, admits of the reply that although a cause and its effect must always be first seen under the contiguities of time and space, yet the particulars of these contiguities, and even the contiguities themselves, may be entirely lost sight of or neglected, while yet the association of thought remains. When we hear a voice we expect to find a person, and this without the slightest reference to any time or place where the connection between speech and speaker may have been perceived by us. This reply would be satisfactory to us, though we are not sure that Hume could consistently use it.

Again, on Hume's behalf, a strong reason may be given for the omission of contrariety from the list of suggestive relations. It is that no objects are contrasted with one another save those which have a common nature, or general resemblance, on which nature, as a background, their differences become prominently noticeable. An elephant is contrasted with a mouse, not with a pebble, because the two objects first mentioned are both quadrupeds. A giant is contrasted, not with a shrub, but with a dwarf or a child, because the latter also are human beings. White is contrasted with red, and hot with cold, because the things thus contrasted have an underlying sameness; we do not oppose white to hot, or cold to red. Cæsar, passing through an Alpine village, remarked that he would rather be the first man there than the second in Rome; such a thought would not have occurred to him had not both the petty village and the world's great capital been alike the dwelling-places of men. The antithesis of objects is founded on their likeness no less than on their dissimilarity.

Such being the case, it must be allowed that without similarity contraries could not suggest one another, and indeed that contraries suggest one another by reason of their radical likeness rather than of their opposite qualities. This is evident, because things which are so different from each other as to have no noticeable sameness do not suggest each other at all.

Yet while likeness, not difference, is the bond of association in cases of contrast, it is also clear that contrariety strengthens this bond and intensifies the suggestive tendency. We more readily think of an opposite than of an object which without contrast may partake of a generic resemblance. This seems to result from the desires of the mind; for if we are seeking rational knowledge, contrast contributes to the clearness of our analysis, and is naturally sought on this account; while if we have practical ends in view, we naturally aim to know what may disappoint as well as what may gratify our wishes. Contrariety, therefore, may be considered a ground of suggestion, yet only in a secondary way, and because of certain motivities which operate in connection with the law of resemblance, and qualify its workings.

Considering the law of contrariety as a peculiar and important mode of the law of similarity, and on this account omitting it from a generic enumeration, there remain the laws of contiguity, of immediate consecution, of cause and effect, and of resemblance. Contemplating these again carefully, two thoughts arise.

The laws of simultaneity and of affinity. Both explained by the law of redintegration. Hamilton, Porter

First, it is apparent that any one of the three laws first mentioned operates only when objects have been already, at some previous time, perceived or imagined to co-exist in the relation to which the law refers, — that is, when the thoughts of the objects must have been previously associated in the mind.

But this is not the case with respect to the law of similarity; for how frequently, in meeting people whom we have never seen before, we are reminded of those whom we have seen, — faces suggesting faces with which they have never previously been consociated in thought! But no place, no date, no event, however noted, can, while viewed simply in itself, suggest any object not heretofore connected with it in our knowledge or conception. Thus the law of resemblance, including that also of contrariety, is separated by a radical distinction from the other suggestional relations.

Secondly, since the laws of contiguity, of consecution, and of cause and effect operate only after the previous co-existence of conceptions in thought, we are led to conjecture that this co-existence may be, or may indicate, *the essential source of the efficacy of all these laws.* This conjecture is confirmed by the fact that cases occur which cannot easily be explained by any of the laws under consideration, yet which, nevertheless, fall under *the general law of simultaneity of conception.* The hearing or the remembrance of a name instantly suggests the idea of the object to which it belongs, although the object and its name may have no other relation in thought than that of the sign and the thing signified. Cæsar and Cicero may suggest one another because they were contemporaries, fellow-citizens of Rome, and actors in the same historical events; but the names of Cæsar and Cicero, respectively, suggest the thought of their owners without reference to the relations of time or place or efficiency.

Another illustration of this point is found in the tendency of any part of any object to suggest the other parts. One precept of the art of war or of government may suggest another, simply because both are members of the same whole; indeed, as Professor Stewart says, "*there is no possible relation among the objects of our knowledge which may not serve to connect them together in the mind.*" In order to such an association, it is needful only that the objects, as related to each other in some way, should appear together before the mind's attention. This generic law Hamilton styles the law of *simultaneity;* that founded on the resemblance of objects he calls the law of *affinity.* Thus all the laws of suggestion are reduced to two.

The further question now arises, whether these two laws may not be reduced to one, inasmuch as their operation is the same. Is there not some principle more fundamental than either lying at the basis of both? Hamilton, answering this question in the affirmative, announces the law of *redintegration;* and Porter, yet more clearly than Hamilton, explains the principle of this law. We have seen that ideas, as such, do not attract each other, and that their association must result from some power or tendency resident in the substance of the mind. Now a tendency in the mind to redintegrate, or render again complete, any complex state formerly experienced and now renewed in part, accounts satisfactorily for all the phenomena of suggestion.

Of course, in one sense, no mental state or action can be the same as one previously experienced; a past activity is gone, and cannot literally be recalled. Yet we style things the same when they are precisely similar; and this especially applies to our successive conceptions of the same object. In this way we speak of several persons having the same idea at the same time, and of one person having the same idea at successive times; nor can the thought be readily expressed in any other way. The redintegration, therefore, or complete repetition, of a mental state is, strictly speaking, the completion of a state exactly similar to one previously entertained.

A tendency to such redintegration explains alike the law of simultaneity and that of affinity. With respect to the former, we know that the mind, while perceiving or considering objects, can entertain several conceptions at the same time. This is true even when the objects may be presented, not at once, but in succession. In driving rapidly through the country, we remember what we have just seen, even while noticing new objects; and in listening to an interesting speech, the leading thoughts of it are borne in mind as the orator progresses. Thus the mind, by a power of collection, adds to the natural multiplicity of present objects. Such being the case, we may hold that a number of conceptions are being constantly conjoined in the same exercise of energy. If any one of these be renewed, the redintegrating tendency, under the action of favorable conditions, will recall the rest, or at least some of them.

This same tendency explains the law of affinity, though not so obviously as the law of simultaneity. When things have any community of nature, or are alike in any respect, our conceptions of them necessarily possess a certain common part or element. Hence, in thinking of any object, we partially reform the conception of any other similar object which we have previously seen. The redintegrating power lays hold on the part of the conception thus renewed, and by means of it recalls the whole idea. The portrait of Sir Philip Sidney brings to one's mind that of Queen Elizabeth, for no other reason than that Sir Philip wore ruffles. His ruffles suggest those of the queen; these again, through the law of simultaneity, suggest her countenance and entire appearance. We accept redintegration as the radical regulative principle of reproductive thought.

At the same time difficulty may often be expected in the application of this principle to the explanation of particular instances. Frequently intermediate thoughts are unnoticed or unexpressed. In such cases the missing links of the association can be supplied only from conjecture. Hobbes, the great philosophical supporter of absolute monarchy, gives an illustration of the natural succession of our ideas, not more remarkable than may be constantly met with in the experience of daily life, yet remarkable for this, that the inaccurate explanation of it by that distinguished man has been quoted with approval in all the leading works of mental philosophy since his time. Some one, he says, in a conversation regarding that civil war which ended in the decapitation of Charles the First, asked abruptly, "What was the value of a Roman denarius?" Hobbes's explanation is that of a true absolutist. He supposes that the circumstances of treachery and wrong attending the death of the king suggested those attending the death of our Saviour; that these again suggested the thirty pieces of silver for which our Lord was betrayed; and that then the thought of Roman money in general suggested the denarius. Is it not more likely that the interrogation had reference to that incident in our Saviour's life when he said, "Show me a penny" (that is, a denarius), and when he enjoined obedience to lawful rulers? If this be so, the state of the man's mind may have been that of inquiry as to the righteousness of the king's condemnation, and not the deep disapproval which Hobbes supposes. But whichever explanation be adopted, either will illustrate and confirm the law already given, the radical law of suggestion, — namely, that the mind tends to redintegrate any complex state which it may have already experienced, and which it may have partially renewed.

4. This radical law of association brings to view the intimate connection subsisting between the powers of attention, acquisition, and suggestion. These powers are so united in operation that no modes of sequence are possible in the suggestion of ideas which have not been preceded by corresponding modes of co-existence while the ideas have been contemplated and acquired. The principle of redintegration is simply the specific statement that the tendency resulting from the exercise of energy in acquisition and attention is a tendency not simply to the renewal of an activity at some future time, but to the renewal of a complex activity in its several parts.

It is, however, to be noted that *the entire redintegration of a past mental state seldom, perhaps never, takes place.* Some of the more prominent conceptions belonging to such a state may be revived, and may, before they depart, be the means of recalling others. The greater portion of our thoughts pass from us into utter oblivion; often even circumstances or particulars which have been of special interest are not brought to mind in connection with the thought of an object or event. Conflicting suggestive tendencies are continually striving, with varying success, for the control and use of our mental energy; in addition to which the current of reproductive thought is constantly checked, interrupted, or turned into some new channel, by the stronger activity of immediate cognition. Thus the actual operation of the redintegrative tendency is simply to reproduce from past thought selections which find in our present thinkings the opportunity to renew old companionships.

CHAPTER XXV.

THE SECONDARY LAWS OF ASSOCIATION.

The laws of associational preference, or the secondary laws of suggestion. Three principal secondary laws.

1. THE character of the trains of thought supplied by the suggestive power differs greatly in different persons, and in the same person at different times. Let us consider the causes of this difference. These may be indicated by saying that redintegration, the primary law of association, is constantly modified by secondary laws, which may be called the laws of *associational preference.* We shall state and discuss the more important of these.

First, then, we say that *the tendency to redintegration is greater or less according to the amount of intellectual energy with which any conjunction of ideas may have been previously entertained.* This law, like the one which it qualifies, operates from our prior thinkings, and may be directly inferred, as a corollary, from the law of redintegration; for if the original energy of a mental state provides a tendency to its complete restoration, on the occasion of any allied thinking, it is easy to see that this tendency will be greater or less in proportion to the amount of energy originally exercised.

That some such principle operates, is evident from certain classes of phenomena which have been carefully noted by philosophers. For example, objects are more likely to be recalled which have occupied the mind for a considerable length of time. The traveller who beholds the wonderful cataract of Niagara, and who fears that he may never see it again, gazes long on the majestic spectacle, that he may keep a picture of it in his mind. Again, it is a trite remark that attention adds to the retentiveness of memory, and in most persons is necessary to any considerable acquisition. In vain we read the noblest authors and hear the ablest speakers if we hear and read without attention. Interest in any object or event fixes it in our remembrance, because in this way our regards have been centred upon it. So, also, repetition of a thought commits it to the memory. Few have that marvellous faculty which receives and retains without an effort long discourses, and even long lists of unconnected names and dates. Most of us use the aid of repetition, as school-boys do when they learn rules and verses. These and similar statements set forth cases in which a considerable amount of energy is exercised, either at once or in successive efforts, upon some given combination of thoughts.

Moreover, it is evident that only the more prominent thoughts in a combination recall one another, the reason being that the energy of attention has been given to them and their mutual relations. The remaining thoughts, having been neglected, are forgotten. It is to be noticed, also, that circumstances which detract from the energy of attention lessen our ability to recall. Nervous excitement or mental agitation weakens both our first perception of objects and our subsequent recollection of them; and things which have been seen only among other interesting sights are not readily remembered, the energy of attention having been divided and diminished.

Another law, subordinate to the radical principle of redintegration, may be thus announced: *The suggestive power acts more or less readily according to the degree of the coincidence of the reproducible thought with one's permanent intellectual tendencies, whether natural or acquired.* No fact is more patent than that men from their very birth differ in their mental endowments and inclinations. This difference, too, increases during their subsequent lives. Not only some men are born poets, but others just as truly are born artisans, men of business, orators, philosophers, statesmen. These differences pertain, not merely to the tastes and motive dispositions of men, but to the very cast of their intellectual faculties. One essential qualification for successful business is the ability to remember every necessary item just when it ought to be remembered. How unfitted for such a task is the poet, whose mind rejects the real and practical, and continually pursues the creations of his fantasy! The philosopher, who seeks to know causes, effects, laws, principles, and systems, in the general, thinks of instances only as related to principles, and allows the special facts and practical details, with which the statesman deals, to slip his mind. Occasionally some intellect combines such contrasted characteristics as are generally separated; then we see the man of varied and versatile talent. Ordinarily every mind has a peculiar bent of its own. These remarks may be abundantly illustrated from the more successful works of dramatic authors; for a certain uniformity of character may be seen to pervade the thoughts, no less than the deeds, of the several persons in the play. When a permanent general tendency, whether constitutional or acquired, unites its power with that of a specific reproductive tendency, a special readiness is manifested for some particular line of thought. Such is the operation of this law.

A third subordinate law of suggestion is that *lapse of time tends to weaken the association of our ideas.* We may question whether any power diminishes and is lost through the mere circumstance of its being unexercised. An ounce of gunpowder, perfectly dry, hermetically sealed, and enclosed in an impervious case, would probably display precisely the same amount of explosive and expansive force at the end of one thousand years as on the day of its being put away. But in the great majority of instances, an unexercised power grows weak, probably *through the abstraction of its energy in the exercise of other related powers* which operate in other ways. Thus the quality of wood as fuel becomes totally lost through that gradual process of decay which reduces it to vegetable mould.

Something like this may occur in the mind. There is no doubt that names, faces, facts, and particulars casually noticed are remembered but for a short time. After a week or a month or a year they are lost and forgotten. For a season they recur occasionally, and are easily recalled; but one by one they disappear and become to us as if they had never been. This may be accounted for, in part at least, by a kind of absorption of energy from the reproductive tendencies through the use of it in the action of allied potencies, and by the comparatively low place, in the rank of recollectible ideas, to which tendencies thus weakened are reduced. They may not become wholly extinguished, — a faint capability of revival may remain; but they are excluded from consciousness through the activity of more powerful competitors. Whether any acquisition of the mind can be so utterly lost as not to be reproducible in another state of being, and under specially favorable and stimulating conditions, is a question upon which we shall not now enter.

A notable exception to one law explained by the stronger operation of others.

We must, however, notice an exception to the law that reproductive tendencies grow weak through lapse of time. Aged persons generally remember the events and scenes of their early days more vividly than those of their subsequent life, or those even of their latest experience. The explanation of this phenomenon depends on the principle that one law of suggestion may be counteracted by another. We have already seen how earnestness of attention, frequency of repetition, and depth of interest, by increasing the amount of intellectual energy originally exercised, create a strong reproductive tendency.

The operation of these causes in early life is beautifully delineated by President Porter. He says: "The objects and events of childhood were contemplated by the mind at first with an almost exclusive and absorbing attention. The few persons that stand out in so bold relief from the background of life when life is reviewed, filled its entire foreground when life was all in the future; for they were the only persons with whom the child was brought in contact. The memorable occurrences of childhood were the absorbing subjects of thought for days before they occurred. They were often reviewed with fond reflection after they were past. The learning to count ten or one hundred, the wearing of a certain dress, the beginning of school life, the long-anticipated, the often reviewed and recited visit to some relative, the first considerable journey, the first party, the first composition, were most important occurrences in their time, and spread themselves over a large portion of the horizon of the infant life." Such is a true picture of the activity of the intellect in the freshness of its youth. The causes productive of this activity are wanting in later life, and particularly in old age. Even in business men often give just so much consideration to transactions as may be necessary, and then immediately dismiss them, that other affairs may likewise receive attention. It is not to be wondered at that earlier impressions maintain a pre-eminence amid others which, though recent, are inherently so weak.

Besides, here, as in most cases of ascendency, the more potent energies renew and prolong their reign. While past events themselves may be long separated from us, those thoughts by which we recall them may have been entertained frequently throughout life; so that the strength of a present recollection may be in part derived from an experience not very distant. This cause of prolonged memory operates not only in regard to the events of childhood and youth, but also in regard to any events which may deeply interest us and which we may afterwards recall. The aged soldier who has participated in hard-fought battles easily recounts the incidents which he has described so often. He

> "Shoulders his crutch, and shows how fields were won."

The retired lawyer gives the details of some great contest in which, years ago, he conquered a proud place in his profession. The statesman sets forth accurately that political situation in which he first rose to eminence, or in which, in some signal way, he was enabled to serve his country.

We have now mentioned three general laws modifying the exercise of the associative power. They operate, respectively, from *previous energy of thought*, from *permanent intellectual habits*, and from *the gradual abstraction of energy* through the operation of tendencies allied to those thus weakened.

Other modifying laws beside these might be named. For example, it is evident that suggestion, in common with our other mental powers, exhibits various degrees of vigor or of debility, as a result of health or sickness, rest or fatigue, and other physical conditions, which affect the life of the human spirit. There may, in fact, be as many subordinate laws as there are general causes to modify the operation of the fundamental law. But the principal laws are those which we have discussed.

The law of habit in its relation to the suggestion of thought. The opinions of Reid and Stewart.

2. When we remember that the associative principle results from a prior exercise of energy, and is a tendency to the repetition of a prior act, it is evident that the law of redintegration is intimately related to the law of habit. Some difference has existed in regard to the precise nature of this relation. Reid remarks: "I believe that the original principles of the mind, of which we can give no account but that such is our constitution, are more in number than is commonly thought. But we ought not to multiply them without necessity. That trains of thinking which, by frequent repetition, have become familiar should spontaneously offer themselves to our fancy seems to require no other original quality but the power of habit."

On the other hand, Stewart, having quoted these words, says: "With this observation I cannot agree, because I think it more philosophical to resolve the power of habit into the association of ideas than to resolve the association of ideas into habit." This opinion of Stewart is untenable. Even allowing, what appears likely, that every habit contains an intellectual element, and that this originates from the repetition of conceptions through the action of the suggestive power, it is clear that all habits, save those which regulate thought only, include additional elements which cannot be accounted for by the association of ideas. Take habits of anger or of calmness, or those of decision or of irresolution, of perseverance or of endurance. While these involve certain recurring modes of thought, do they not consist yet more in certain activities of spirit which, through exercise, have grown into strong motivities?

As to Reid's statement, we allow that the spontaneous return of "trains of thought which, by frequent repetition, have become familiar," may be regarded as the manifestation of a habit formed by the intellect. Yet we would rather say that habit and the suggestion of ideas originate in the same general principle of psychical life than that this suggestion is simply one mode of habit. The common principle at the basis of both is that *every spiritual exercise leaves in the soul a tendency to its repetition.* This tendency is produced, as we especially perceive in many associations of thought, even when the exercise may have been only once experienced. *But we do not call such a tendency a habit, unless it both result from many similar experiences, and is causative of frequent repetitions.* Suggestion cannot be resolved into habit, nor habit into suggestion; but they are closely related through a common origin.

The term "habit" defined.

Let us dwell for a moment on the term "habit," which, because of its various meanings, may be the ground of some confusion. This word is the exact Latin equivalent of the Greek ἕξις, which signifies "a holding," or "a holding of one's self," — that is, *the condition of anything as to its internal state*, or constitution. In this sense we yet speak of nervous, phlegmatic, healthful, and diseased habits of the body. Ordinarily, however, the term signifies *a tendency acquired by repetition, and causative of the frequent performance of some action.* We speak of habits of study, of industry, of thought, of virtue. This is the meaning in which we have used the word while inquiring whether every suggestive potency is a habit. Finally, we apply the term, not to the tendency, but to the action, or *mode of action, resulting from it*, considered as thus resultant. We say it was his habit to study earnestly, to take snuff, to speak loudly. To express this meaning the word "custom" is often employed; and in this signification a habit or custom differs but little from a practice, the distinction being that the latter does not suggest the existence of a corresponding tendency.

The notion of facility naturally connects itself with that of habit, and is sometimes suggested by it, but is not included in it. We cannot agree with Professor Stewart, who defines habit as an acquired facility, and who says that "the dexterity of the workman, the fluency of the orator, the rapidity of the accountant," are habits; they are rather results accompanying habits.

Differences of view exist as to the extent of the office of the suggestive power. The associationalists make this power the source of all our ideas save those which may be regarded as impressions from without; and they account for belief and memory, judgment and reasoning, by the union of associated conceptions. The formation of such doctrines arises from a superficial analysis of the facts of intellectual life, from an undue desire for simplicity, and from a disposition to interpret the laws of spirit by a reference to those of matter. No views could be more repugnant either to the common judgment of men or to severe philosophical inquiry.

At the same time we should mark the pervading influence of the suggestive power. While association does not of itself form new conceptions or convictions, nor even analyze and combine those already in possession, it is the agency through which past thinkings are made present, and from which our higher faculties receive the greater part of the materials which they elaborate. Without this power of suggestion, memory and recollection, fantasy and imagination, and the processes of reason could never be experienced.

Association not limited to ideas of accidental connection. Kant, Bruckner.

3. Some writers confine the operations of the associative power to thoughts which have only an accidental connection with each other, referring to some other faculty suggestions which make use of the necessary relations of things. Kant limits the "law of association" to "empirical ideas." Bruckner, the earnest disciple of Leibnitz, defines association as "non quævis naturalis et necessaria idearum conjunctio, sed quæ fortuita est, aut per consuetudinem vel affectum producitur, qua ideæ, quæ nullum naturalem habent inter se nexum, ita copulantur, ut, recurrente una, tota earum catena se conspiciendam intellectui præbeat." The question might be regarded as one of terms, though it may also be used in support of the theory that a certain class of our ideas suggest each other aside from any previous association.

To us such a doctrine seems not absurd, yet uncalled for. Conceptions whose connection, as setting forth a true necessity, has a necessitudinal reference, when once conjoined in the mind, may thereafter suggest each other in precisely the same way as those which have merely an accidental connection. There is no good reason to question that they may and do suggest each other under the law of redintegration. This is a sufficient account of those associations whereby we are enabled to reason from cause to effect and conversely, by applying that knowledge of laws which we have obtained from experience. Seeing the outside of a book, the printing on its pages is suggested; whereupon judgment adopts this conception and asserts its truth. Even our notions of those things which are connected by absolute, or ontological, as distinguished from empirical, necessity, suggest each other according to the ordinary law of association, and need no other law to explain their conjunction.

This principle does not account for their first union, nor for the first production of any intuitional conceptions and convictions. These originate in the immediate perceptions of the mind. Afterwards, however, redintegration may reproduce them together in memory and in imagination. Thus, in noticing any action, we at once perceive it not simply as an action, but as the action of some power residing in some substance; after which, even in dreaming, action, power, and substance are mutually suggestive.

But should any think that one of these ideas would suggest another without such previous perception, — that it would do so by reason of the very constitution of the intellect, — this may be allowed as probable or, at the least, credible; to this extent only, Kant's doctrine of the intuitions might be accepted.

CHAPTER XXVI.

ANALYSIS AND SYNTHESIS.

Defined and illustrated. Pertain immediately to conceptions, not to objects.

1. ANALYSIS and synthesis are two modes of mental activity which are to be distinguished from thought, but which constantly take place in connection with thought and with belief. They affect equally the working of these primary powers, because belief is experienced only as an attachment of thought. The terms "analysis" and "synthesis" are the Greek equivalents of the Latin *resolutio* and *compositio*; they literally signify "a taking apart" and "a putting together." So far as the intrinsic meaning of the words is concerned, analysis and synthesis might express any kind of separation and of union. In chemistry analysis is the actual separation, for scientific purposes, of any compound substance into its material elements; and, for aught we see, any actual uniting of elements so as to form a compound might be called a synthesis.

Ordinarily, however, in philosophy these expressions refer to a kind of *sundering and joining in thought of the elements or constitutive parts of things.* In other words, analysis is the separating of the conception of an object into the conceptions of its several parts; while synthesis is the uniting of the conceptions of the several parts into that of the one object. Our conception of an ordinary triangle might be analyzed into those of a plane surface, of three straight sides, of three angles, and of certain special relations in which these things may be and often are conjoined. Our conception of a pin might be resolved into those of a short stiff wire, of a head, of a point, of the mutual relations of these parts, and of the fitness of the little instrument for a certain use. Our conception of an apple may be decomposed into those of fruit, of a general size and shape, of certain contents of seeds and an eatable body enclosed within the smooth peel, of a peculiar taste and juiciness, and of the mutual relatedness of these elements. A synthesis would take place when, from any of the foregoing descriptions, the notion of a triangle or a pin or an apple should be formed. Such a synthesis gives a more perfect conception of the object than we can have without the preparatory analysis; the expression of it in language is what we mean by logical definition.

Ideas often admit of analysis when the objects of them cannot be literally taken to pieces. The sides of a triangle could never be removed from the plane surface so as to leave the latter by itself; nor could the angles be removed from the sides. In defining a sphere we think of a solid body of a certain shape; this shape could not exist in separation from the body. A vow is a promise made to God; but in analyzing a vow, though we can think separately of the promise and of its direction, we cannot literally take them apart. The separation of parts or elements, where it is possible, may assist analysis, but it is far from being the counterpart of the operation in the mind. If the constituents of a tree were so separated that one could see the roots in one place, the trunk in another, the branches and twigs in another, and the leaves in another, the ideas thus obtained would not give the analytic conception of a tree. There would be need to see, or to construct in imagination, a tree with all its parts in their proper relations to one another. Even chemical analysis is so called by reference to an inward perception of elements, not as they may be in actual separation, but as they are in combination. It aims at that mental analysis which would ascertain and separately consider the elements *as they exist in their relations to each other in the compound.*

In short, by analysis, we think separately of the parts or elements of an object, but do not think of them as separated. On the contrary, we think of them as related and united to each other; and this last conception, that of the mutual relation of the constituents, is often the most important result of our intellectual work. Let it be borne in mind that analysis and synthesis are operations which affect our ideas; they are not operations which affect the objects of the ideas. Sometimes we speak of the analysis of this or that object, — the analysis of some battle or some crime or some painting or some geographical territory. But this means only a detailed description — in other words, an analytic setting forth — of our *conception* of the object.

Again, in analytic as well as in synthetic thought we think of all the elements of an object, including the relations of the parts to each other, *at the same time*. The difference is that in analytic thinking we also regard each element successively with a special exercise of attention, while in synthetic thought we do not do so. In analysis we give separate but not exclusive attention to each element. Modern psychology teaches that the mind can think of more than one object at once. In synthetic conception we think of but one object composed of several parts; in analytic conception we not only think of the whole object, but also, and with a special exercise of energy, consider successively each several part as related to the rest: we may even be said to think of two objects, the first being the analyzed whole, and the second, each part as it is specially considered. In analysis our attention is more or less drawn off the whole to each part in its turn; in synthesis it is more equally distributed. Yet we do not in analysis give exclusive thought to any element, forgetful of its place in the whole; when such exclusive thinking takes place, analysis has passed into abstraction.

For this reason, and in strict accordance with the Greek derivation of the word, analysis might be defined "a loosening up," rather than an entire separation, of the elements of a compound notion. We cannot deny, however, that the conception of analysis may be so enlarged as to include not only the first separation of the constituent thoughts from one another, but also their entire abstraction into independent notions. The word is employed sometimes in this secondary sense. Having analyzed the idea of ordinary milk into those of a fluid, — white, sweet, nourishing, secreted by the cow, and a common article of food, — we might say that the notions "fluid," "whiteness," "sweetness," "nourishment," "secretion," "food," were obtained by analysis from the conception "milk;" and this would be true though, in addition to analysis proper, abstraction was needed.

From the nature of the case the analytic conception is not so instantaneous as the synthetic, because, in addition to the thought of the whole, it includes a successive attention to every part. When, after careful analysis, we reunite the parts of a notion, our thought is more perfect than it was at first. Our conception is freed from any obscurity or indistinctness. Nevertheless, it is again properly styled *synthetic*.

Analysis distinguished from the division, and synthesis from the generalization, of ideas.

2. Again, let us note that analysis is not the division — that is, the logical division — of notions, and synthesis is not the generalization of notions. Logical division takes place when, by the successive addition of differences to some generic idea, we form various specific conceptions. Certain differences

being added to the notion "tree," we have the conceptions "oak," "beech," "fir," "elm," "maple," "walnut," "apple," "pear," "cherry," and so forth. Strictly speaking, this is a division, not of the notion, but of the class of things to which the notion is applicable. So far from the idea "tree" being divided into parts, it is used intact, and a new part is added to form each specific conception. This is a synthetic, not an analytic, process. Many ancient logicians, however, used the word "analysis" to indicate this division of a genus into its species, and not the separation of a notion into its elements. This circumstance caused a confusion, from which the terminology of later times has been free.

In like manner it is clear that synthesis and generalization are not of the same nature. The latter process is the formation of the idea applicable to a class from the conceptions of species or individuals included in the class; it is the formation of a general notion from specific or from singular notions. Such a process, had we no respect for a fixed usage, might be called a synthesis of the subordinate objects and ideas; because, in providing for the classification of different species and individuals, it figuratively unites the former under a genus, and the latter under a species. The formation of the notion "tree," from the conceptions "oak," "beech," "fir," "elm," and so forth, might be named a synthesis of these subordinate objects or ideas; for it puts them in one class. Yet the formation of a general notion does not involve any literal synthesis, or composition, either of the objects or of the ideas. On the contrary, generalization involves the analysis of singular and specific conceptions, so that their differences or peculiarities may be rejected, and their common part abstracted and retained.

To style generalization, or classification, "synthesis," is to apply the term in a sense not only different from that in which it is ordinarily employed, but essentially the reverse of it. Such a use of language should be carefully avoided.

A unit defined. A whole, a composite unit. Four classes of wholes result from four methods of conceiving of parts and of wholes.

3. A better understanding of this topic may be obtained if we consider the nature of that unity which analysis separates into a plurality of parts, and which is the foundation of the synthetic character of every complex notion. It is the oneness of what philosophers call *the metaphysical whole.*

An object is one, or a unit, when it is a definitely distinguishable quantum of entity. Any entity absolutely indivisible, and which is without a plurality of parts or elements, can be thought of only as a unit. Almost all objects, however, are composite, and can be considered both as units and as pluralities. A composite unit, using the term "composite" in the widest sense, is properly called a whole.

The question now arises, Under what conditions does a plurality of entities constitute a whole, so that we can think and speak of it as one? The answer is that a plurality of things becomes one, or a whole, as being *commonly and mutually related;* and they are thought of as one, as a distinguishable quantum of entity, when, by reference to such relatedness, *the mind can grasp them in one conception.*

In mental philosophy the main points of difference between wholes do not concern the nature of the parts composing them, nor even the nature of the relations which unite the parts, though this last must be considered, but *our mode of conceiving of the parts as related.* The question whether or not, and in what sense, a whole is properly the subject of analysis and synthesis, depends on a knowledge of the different ways in which the mind conceives of parts in their relation to one another, and so may compose or decompose its conception of a whole.

The collective and the generic wholes. Not those considered in analysis and synthesis.

With respect to this conception of parts, four wholes, or classes of wholes, claim our attention, two of which are composed of parts indefinitely conceived, and two of parts conceived definitely.

Of the two first mentioned, that one which is composed yet more indefinitely than the other may be styled the collective, or aggregate, whole. This emerges when things, however dissimilar and otherwise wanting in any noticeable direct relatedness, have a common relatedness to some entity, through which, of course, they are also related to each other. Things may be together in place, in possession, or in time, or as objects of thought, as subjects of discourse, as conjoint causes or causal conditions, or as conjoint effects, or in any other mode of assemblage. A city, an inheritance, a generation, a history, a policy, an administration, a variety, a plurality, considered as collections of objects which have a common relation, are aggregate wholes. Such wholes admit of the utmost diversity among the parts; for these need only have a common relatedness.

The other indefinitely composed whole is the generic, or logical. It arises when many individuals have a similarity of nature; every individual in such a class resembles every other in the class; and thus all are commonly and mutually related. This whole, being founded on community of nature, embraces every individual that may have the common nature, and excludes all others. As a collection might consist of similar things, the logical whole might be considered a peculiar species of the collective; but it is better to distinguish these wholes by confining the term "collective" to wholes whose composition is not conceived of as based exclusively on the relation of similarity. The conception of a collection of things may be distinguished from that of a kind of things, because the former is never based simply on similarity of nature.

The generic, or logical, whole is seen whenever we think of any genus or species of things as comprising individuals, or subordinate classes. Mankind, the horse, civil government, thought, words, blows, and every conceivable kind of a thing, are logical wholes.

Our idea either of a generic or of a collective whole is not obtained by a synthesis of our conceptions of its parts; and our ideas of the parts severally are not obtained from an analysis of our conception of the whole. On the contrary, in conceiving of these wholes, the parts are referred to indefinitely, as things subject to the constitutive relations; which reference may be regarded as the result of an analysis, or abstraction. And our specific, or singular, ideas of the parts of any such whole are not included in the conception of the whole as such. They are either given at first together with the conception of the whole, or, if subsequently formed, are obtained by a synthesis which successively distinguishes the different parts by the addition of differences, or accidents, to the common character. Such being the case, it is plain that *the separation of a whole into its parts by analysis, and the uniting of parts into a whole by synthesis, do not take place in relation to collective and generic wholes*, but that these processes must pertain to wholes of another nature.

The compositional, or mathematical; and the elemental, or metaphysical, whole. Partition and composition distinguished from analysis and synthesis.

4. Let us consider those wholes which consist of definitely conceived-of parts. By this we do not mean that their parts are conceived of without any indetermination (such exactitude seldom or never occurs in thought), but only that they are conceived of with a definiteness which does not belong to mere collections or classes of things. In common language, when a whole is contrasted with a total, we distinguish the definitely from the indefinitely composed whole; but aside from this contrast, the term "whole" is not restricted in this way, nor is the contrast found in ancient usage.

Definite wholes are of two kinds, and may be distinguished as the compositional, or mathematical; and the elemental, or metaphysical. They differ from those already considered in this, that the ideas of the parts enter into the conception of the whole with more or less definiteness as to the number and specific character of the parts. This is not the case with collections and kinds of things. They agree with these wholes in this, that the parts of every whole are commonly related. A tree considered as composed of roots, trunk, branches, and leaves is a whole of definite conception; and these parts are united as participating in a common nature, as being together in space, and as forming a system of growth and reproduction. The common relatedness connecting the parts may not be so prominent and noticeable as other relations which belong to parts specially; yet it is always sensibly present, and may be discovered by careful inspection. Every part of an animal is related to the life of the animal; every part of a chair to sitting; all the parts of a stone to the size, hardness, and coherency of the body formed by them; every detail of a plan or business undertaking is subordinate to a common end or result; every part of a geometrical figure is united to every other through a contiguity within definite spatial limits, as also by a community of nature; every moment in an hour, and every year in a century, is connected, through contiguity of time, with every other part.

Moreover, the parts of definite wholes generally, though not necessarily, exist in a fixed or systematic union, — that is, in such relations that they could not change places without destroying the constitution of the whole. Hence the peculiar relations of each part often enter prominently into our conception of the integral entity. Considering a tree as a whole composed of roots, trunk, branches, and leaves, the peculiar relations of each part to the rest enter into our very conception of the tree. This is never the case with the indefinite wholes.

The compositional, or mathematical, whole *consists of parts which can exist, and therefore can be conceived to exist, apart from one another in space or in time.* A human body, as composed of head, arms, trunk, and legs; a man, as made up of soul and body; a ton-weight, as containing twenty hundreds; a sentence, as embracing a number of words; a square, as formed by the exact juxtaposition of two equilateral right-angled triangles, — are examples of this whole. We call it compositional, because it may be conceived of as formed by the composition, or putting together, of suitable parts, according to their appropriate relations; it has been called mathematical, not because its parts always admit of quantitative determination, but because it is the only kind of whole about which and the parts of which mathematical reasonings are ever employed.

Some, in defining this whole, say that "every part of it lies out of every other part;" it is more exactly to the purpose to say that the parts are such as *may* exist separately. Should we describe two equal circles with centres connected by a semi-diameter, the resulting figure would be a mathematical whole composed of two circumferences, though these would not lie out of each other. In like manner a *nest* of boxes, in which one smaller box after another is placed in the box next larger than itself, is a whole in which the parts do not lie out of one another. When things are separable in space or in time, they are easily considered and conceived of separately; this is a characteristic of the parts of the compositional whole. The different notes of a musical chord take place together, but they may be produced separately, and are therefore easy of separate conception. A walk, a speech, a fight, are easily decomposed as being wholes whose parts occur in succession.

The process of thinking separately of the parts of a mathematical whole is often called *analysis*, while that of forming a conception of such a whole may, with some propriety, be styled *synthesis*. But when precision is desirable, it would be better to term these processes the *partition* and the *composition* of conceptions, reserving the terms "analysis" and "synthesis" for modes of action in which a more searching and penetrating kind of thought is employed.

This brings us to mention the metaphysical, or elemental, whole, as that with which, speaking strictly and precisely, analysis and synthesis are concerned. The human mind, in its natural judgments and thinkings, often distinguishes things from each other, which can have no separate existence in space or in time, and which yet are recognized as truly different in nature. Action cannot exist separately from power, nor change from action, nor quantity from entity, nor substance from quality, nor relations from their relata; yet these things can be separately thought of. *A whole considered as composed in any measure of such inseparable parts is what we call a metaphysical, or elemental, whole.* It is metaphysical, because those elements and relations specially perceived in its analysis form the data of that science which seeks the ultimate in thought and in being; it is elemental, because elements, as distinguished from parts, are brought to view in its analysis.

A satisfactory knowledge of any subject commonly demands that it should be considered as a metaphysical whole. Only in this way can we determine the ultimate elements of a thing and their relations. Elemental analysis, also, is necessary to that defined and perfected conception of a thing in which our conceptions of its parts are properly co-ordinated and combined.

The various wholes which have now been mentioned are not so opposed to each other that they could not exist in, or be composed out of, the same unchanged set of materials. On the contrary, the same set of objects — as, for example, the human race

— might constitute a collective, a generic, a mathematical, and a metaphysical whole. But these wholes differ as to the nature of the relations according to which they exist or are constructed, and as to our conceptions of them derived from a diverse contemplation of constitutive relations. They are exclusive of each other as the conditions of different modes of mental action; and it is also to be noticed that the same set of objects are not often conceived of as composing both an indefinite and a definite whole.

The descriptions given above, particularly of the metaphysical whole, differ somewhat from those to be found elsewhere. They are, however, what the philosophy of mental action demands; in which philosophy we find the principal, if not the only, use for such descriptions.

Analysis and synthesis relate to the metaphysical whole.

Our chief purpose, in treating of this general subject, has been to distinguish and define the metaphysical whole. The conception of this whole is the ordinary form of our conception of anything as a unit, and is the basis of all our ordinary conceptions of things. Moreover, it is from the analysis of an object as being a whole of this sort, that a thorough understanding of the nature of the object is to be obtained. The partition of the mathematical whole being restricted to the conceptions of separable parts and the relations of these as such parts, is far less searching than the analysis of the metaphysical whole. Not merely all philosophy, but also all clear and satisfactory thinking, involves elemental, or metaphysical, analysis, together with the synthesis which is conditioned thereupon.

The analytic and the synthetic methods in philosophy. The terms "regressive" and "progressive" explained.

5. In this connection we may consider two opposite methods employed in philosophy, each of which has its proper use. The one has been styled the *analytic*, or *regressive;* the other the *synthetic*, or *progressive*. In the former we first consider individual facts or instances, and then ascend from these to general principles and conceptions. In the latter we begin with the statement and explication of general principles and notions, and then descend from these to the specific and the individual. To state the matter in another way: in the analytic method we proceed from the complex to the simple, while in the synthetic we proceed from the simple to the complex; for what is general is simple, while the specific and the singular are complex.

The terms "regressive" and "progressive," as applied to the analytic and the synthetic methods, may suggest that progress in philosophical knowledge is to be made by the latter method chiefly, and that the former is useful principally for the examination and attestation of results. Such views have been entertained, but they are erroneous in the extreme. The true point of departure for scientific progress is found, not in the simple and general, but in the complex and singular.

Regress and progress, as applied above to philosophical methods, properly refer only to certain logical orders of thought whereby we often naturally proceed from the general to the specific, or from the specific to the general; they do not at all indicate the order of original scientific investigation and construction. According to this latter order, the analytic might properly enough be styled a progressive, and the synthetic a regressive, mode of thinking.

The analytic is the necessary method for all true progress in philosophy. It is the only means of correctly ascertaining the laws of any department of existence. Yet we are not to suppose that the only process employed in it is analysis. This is the radical source of its efficiency and value. But from time to time synthesis, marking relations between the principles secured by analysis, gradually builds them into a system, which, nevertheless, is to be regarded as the product of the analytic and not of the synthetic method. Frequently, also, in the course of our investigation, conjectures or hypotheses, essentially synthetic acts, assist our progress.

The synthetic method is the reverse of the analytic. Setting out with general conceptions and principles, it combines them into others more complex. Such a method can have no value save so far as its general notions may be correct. Therefore it is not a proper method in cases in which principles are doubtful or but partially ascertained. Many systems of philosophy constructed on the synthetic method have secured wide acceptance through their wonderful ingenuity and consistency, yet are now regarded simply as remarkable phenomena in the history of the human mind.

Two uses of the synthetic method: 1. To correct and perfect the results of the analytic method; 2. To construct systems of practical philosophy.

There are, however, two applications of the synthetic method in which it may be employed to advantage. First, it may and should be used in the more perfect systematization of any science whose principles have been analytically determined. That synthesis which necessarily attends any process of investigation is insufficient for the clearest and most exact apprehension of a number of related doctrines. This end calls for a careful review of results with reference to their mutual relations, and an orderly arrangement of them with reference to these relations. In the synthesis of investigation we successively unite together special parts of a system, without being able to show definitely their relation to larger parts, or to the whole. We proceed like the first excavators of Pompeii, who uncovered the several apartments of one house before proceeding to those of another, and who localized their labors now at a temple, now at a theatre, now at a market-place. But in the synthesis of ultimate systematization, we clear the streets and openings between the buildings, and we gradually behold residences, temples, theatres, market-places, gardens, walls, and fortifications, in their proper proportions and locations.

In connection with this synthesis of ascertained principles, important questions often present themselves, and many subordinate particulars also are determined. This systematizing synthesis, whereby the analytically ascertained principles of a subject are combined in outline, and less essential ideas, combinations, and discussions are introduced afterwards, contributes greatly to render one's thought and knowledge exact and complete. Generally, also, it presents a better order for the communication of knowledge.

Occasionally it may be better for the author of a system to present it in that order in which its parts have been constructed during analytic investigation. This order is always possible, and it is advisable when the investigator would exhibit to others his conformity to philosophic methods. But the ordinary aims of instruction call for the synthetic order of thought, which therefore is sometimes called the didactic. It is in this didactic use that synthesis notably assumes a progressive character. For the learner receives first the leading principles of a system and their relations to each other, and after that, less important and more numerous details are presented under each head in succession. In this way he progresses rapidly and easily.

Such is the first application of the synthetic method. Its aim is the co-ordination and presentation of principles which have been acquired by the method of analysis; it is merely an attachment and completion of the latter method.

According to the second application of it we act independently of the analytic method, and directly construct a body of philosophy. This use can have place only when a considerable number of principles are well known, and admit of being variously combined and applied. This is the case with the mathematical sciences, such as algebra and geometry, and with certain practical philosophies which constantly refer to the acquisitions of experience and common sense. Systems of ethics, of polite manners, of civil law, of political wisdom, of æsthetics, and of rhetoric have been constructed in this way. Cicero's excellent treatise, "De Officiis," is an example in point. Horace's "Ars Poetica" is another, but less perfect, illustration. Such systems serve a good purpose, though necessarily wanting in profundity. It is to be noticed that analysis is often used in the construction of them, not for the ascertainment of principles, but with the object of more exact definition and apprehension; and thus analysis plays a secondary part, just as synthesis does in the analytic method.

From what has now been said, it will be seen that as regards progress in philosophy, analytic work alone secures new principles, and is the more important. Synthesis has a subordinate office.

The analytic and synthetic methods are to be distinguished from the analytic and synthetic modes of thinking, by the predominance of one or the other of which they are respectively characterized. The chief object of the present discussion has been to explain the nature of these modes of thinking. This explanation has been found, first, in a power of the intellect to conceive of a plurality of objects at once and to think of them as one when they may be united by some system of relations; and, secondly, in the further power to think successively of each part or element of the plurality, while thinking also, though with less energy, of all the rest. From this it is plain that analysis is naturally consequent upon a special direction of the attention; while synthesis naturally takes place when all the parts of a whole, together with their mutual relations, may be regarded with the same degree of mental energy.

CHAPTER XXVII.

ABSTRACTION AND CONCEPTION.

Substance and Attribute.

Abstraction the ulterior result of analysis. Related to the metaphysical, or elemental, whole.

1. ABSTRACTION is the immediate ulterior result of analysis. We may speak of the analysis of the mathematical whole, and so of the abstraction of any of its parts. Wherever analysis may take place, abstraction likewise is possible. But synthesis and analysis proper belong to the metaphysical whole as such, not to the mathematical; the synthesis and analysis of the latter being better distinguished as composition and partition. In like manner abstraction proper belongs to the metaphysical whole only. The abstraction of the part of a mathematical whole need not be distinguished by any special name other than mathematical abstraction; it is not of philosophical importance.

The reason on account of which the analysis and abstraction of the mind are directed to the parts of the metaphysical whole as such lies in the fact that the *mental division of an object into its mathematical, or separable, parts is not sufficient even for the ends of ordinary thought.* We cannot from such a division adequately understand and express the nature of things. This purpose requires that we should consider and designate inseparable parts, such as powers, shapes, magnitudes, and attributes generally. The distinction, therefore, between mathematical and metaphysical wholes, and other distinctions to be made in connection with this one, though abstruse, are needful to a clear understanding of the workings of the intellect. The most subtile discriminations of philosophy are little else than the recognition and naming of distinctions which the mind naturally makes in its daily thinkings; and their importance arises from this fact.

An element defined.

The word "element" — possibly the same, originally, with "aliment" — is a term which frequently occurs in philosophy. It signifies any of those parts of an object into which it is or may be separated by analysis, and which therefore may be separately considered by abstraction. The parts of the mathematical whole are improperly, while those of the metaphysical whole are properly, elements. When the term "element" is distinguished from, and contrasted with, the term "part," the latter refers to the mathematical, and the former to the metaphysical, whole. As analysis may take place in different ways, and may be more or less searching, till a result is reached beyond which no further analysis is possible, so the elements of an object may be differently conceived of and enumerated; but in every case the elements are those parts which analysis has made the objects of distinct consideration. They may or they may not admit of other or further analysis.

Conception defined and illustrated. Abstraction defined.

In connection with the process of abstraction, that of conception, also, as the act of the mind in forming a compound or complex idea, may be considered. A notion of a thing may be formed by the composition of mathematical parts; and such a composition, in its relation to the object, might be spoken of as mathematical conception. Ordinarily, however, conception signifies the construction of a thought by means of the synthesis of the parts of a metaphysical whole. This may take place without preceding analysis, various constituent perceptions immediately uniting themselves so as to form one idea; but our more perfect notions follow upon a careful analysis of the ideas first entertained by us, and this is the only way in which clear and satisfactory ideas can be formed.

That conception is the synthesis of a metaphysical whole is evident in the case of objects not naturally thought of as composed of separable parts. The idea of an ivory ball is formed from the elementary thoughts, — a ball, white, hard, smooth, made from the tusk of an elephant, and fitted for use in certain games. A person having obtained these thoughts, either by his own observation or from the description of others, would unite them by a more or less rapid synthesis. It is plain that they are the parts of a metaphysical whole.

But even in the case of objects easily viewed as mathematical wholes, our notions are ordinarily formed by synthesis and not by composition. A tree may be considered as composed of roots, trunks, branches, twigs, leaves, and fruit, as separable parts; but our idea of a tree is not formed by the mental composition of these parts as in certain relations to each other. After one had seen the separable parts of a tree, he would indeed think of them as included within the object; but his conception would also embrace various elements characterizing the tree as a whole. He would regard it as a material body, as a vegetable growth of a certain size and height, and as capable of reproducing its kind by a certain process. These thoughts would enter into his conception as metaphysical parts. Therefore the tree as a whole would be viewed as a metaphysical and not as a mathematical whole; for the former exists when any of the parts conceived of in the analysis and synthesis are incapable of separate existence, whether any of the remaining parts are such or not.

From such instances it will appear that conception may be defined as that act or process of synthesis whereby ideas or notions of greater or less permanence are formed, — in other words, conception is a mode or species of synthesis; while abstraction is an act of analysis, differing, however, from mere analysis in that we entirely dismiss from our attention, and often from our thought, every part or element save that which has specially engaged our regard.

Logical distinguished from natural abstraction and conception.

2. A peculiar difference is noticeable in the mind's method of conceiving and of abstracting, according as this may be more natural and accidental, or more methodical and logical. We therefore make a distinction between what we may call natural, or informal, and what may be styled logical, or formal, abstraction and conception. In logical conception and abstraction an object is viewed as being substance and

attribute, — in other words, as being a thing with its qualities or characteristics. These modes of thought depend on the ability of the mind to distinguish a thing as a substance from the attributes by which it is constituted and characterized. But that style of abstracting and conceiving which we have termed *natural*, and which is less refined and rationalized than the other, dispenses either wholly or in part with the distinction of substance and attribute, and deals with objects as immediately constituted by some other and less general relations. Logical abstraction may be considered as the extreme result of the exercise of the analytic power of the mind in its ordinary workings; while logical conception is that synthesis which reunites the parts separated in logical abstraction.

The formal processes of abstraction and conception are contrasted with the informal because *they make use of that distinction of substance and attribute which can be applied equally to every entity, or thing, whatever be its specific nature*, and because *they consider the parts or elements of an object only so far as they lend character to the object as a whole;* whereas the informal processes do not use that peculiar distinction, but immediately think of the parts or elements as things having their own proper characteristics. Thus, in the logical way, we describe a triangle as a plane, triangular, three-sided figure; but in the natural, or less artificial, way we speak of it as a figure made up of a plane surface, three sides, and three angles. In the one case we use attributes or qualities as such; in the other, parts or elements, as distinguished from attributes.

Logical conception and abstraction alone call for special consideration, for they only are ordinarily meant when we speak of abstraction and conception. Every important question concerning them is directly involved in the doctrine of substance and attribute; and as great confusion has hitherto attended the explanation of this doctrine, we may profitably make it the subject of a discussion.

A scientific distinction, but not of scientific origin.

Before entering upon this, let us premise that, however difficult of analytical understanding the distinction between substance and attribute may be, it is not one for which the science of metaphysics is originally responsible. It is a natural product of the mind. When a man thinks of a guinea, and speaks of its shape, size, color, value, usefulness, and so forth, and distinguishes these things from the guinea as having them, he is distinguishing a substance and its attributes from each other. All that the metaphysician does is to name and to explain the distinction.

We form abstract notions of things or substances as well as of attributes or qualities.

The bearing of this distinction upon the doctrine of abstraction and conception may be presented in the following statements: first, that the logical conception of an object is formed when we unite to the idea of a substance or thing those of the attributes which properly belong to it; and, secondly, that we form an abstract idea whenever we either abstract the notion of an attribute from that of an object, or the notion of an object from that of any one or more of its attributes. No one will dispute the first of these statements; but in regard to the second, it may be objected that we generally speak of the abstraction, not of substances or things, but of attributes only.

The fact alleged in this criticism must be admitted. At the same time the expression of philosophical truth calls for a use of the term "abstraction," according to which it may be applied to the ideas of substances as well as to those of attributes; for it can be shown that an act of precisely the same nature may take place in regard to the thing as in regard to its qualities.

We allow that the power of abstraction is much more noticeably exercised about attributes than about the objects to which they belong, yet contend that it is employed about the latter also. Men often contemplate an object in some special light or from some special point of view, rejecting from their thought other aspects and the attributes which they would bring before us. Regarding some book simply as ornamental, we say that it is a handsomely bound and finished volume; looking on it only as a collection of reading matter, we say that it is an octavo printed clearly, correctly, and on good paper; considering its contents, we say that it is an able and interesting work. In each of these cases we abstract, not an attribute simply, but *the object, as having certain attributes*, from other attributes which also belong to it; and so far as the nature of the act itself is concerned, the abstraction of the object from one or more attributes differs not at all from the abstraction of one or more attributes from the object.

When we consider some man as a citizen, as a son, as a husband, as a neighbor, or as a friend, we as much abstract him from characteristics foreign to the view we take of him, as we do his characteristics from him when we say that he is honest, or intelligent, or neighborly, or dutiful, or even when we say that he exhibits honesty, intelligence, neighborliness, or dutifulness. Hence, in ordinary speech, conceptions of high generalization, such as are employed in wide scientific statements, are often styled abstractions, or abstract thoughts; and this equally whether they refer to things or to attributes. Moreover, the abstraction of substances as well as of attributes is involved in the doctrine, which all admit and teach, that abstraction is needed to form any common or general notion.

Logical substance defined. New term proposed.

3. But here we must remark, in explanation both of what has been said and of what we have yet to say, that the word "substance" in logical discussions, and when opposed to the word "attribute," has a meaning quite different from what belongs to it elsewhere. Often this term signifies a material entity as occupying space. We speak of water and clay as substances. In a wider sense it is applied to spirit and matter as the only known kinds of entity in which powers or active qualities reside. But *the substance of which we now speak is anything whatever to which an attribute may be said to belong.* In saying, "The length of the cable is immense," "The color of the rose is pleasing," "The skill of the orator is marvellous," the terms "length," "color," and "skill" stand for substances no less than the terms "cable," "rose," and "orator;" for each of them admits of attributes. Indeed, since everything whatever that can exist must have attributes, and can be thought of as having them, everything may be regarded as a substance.

There is an analogy between this and the less extended uses of the term. As an ordinary substance, or any spiritual or material entity, is characterized by the powers belonging to it, so anything whatever is characterized by the attributes which may be predicated of it. But the wider meaning is plainly different from the more limited ones. Sometimes the phrase "logical substance" is used to distinguish the former. We think it would be well if some other word than "substance" could be employed in discussions like the present; and for this reason we may sometimes, instead of substance and attributes, use the terms "substantum" and "attributa." Even barbarous language is not to be utterly rejected, if it may contribute to clearness of thought.

We may be aided to an exact understanding of the notions expressed by these terms, if we consider some other terms and notions which, as being closely allied to those under discussion, may, with them, be regarded as the products and instruments of logical abstraction and conception.

Entity, form, and matter defined.

By entity we mean *that which does or may exist.* The essential nature of entity is simple and unanalyzable; in saying entity is that which exists, we define it from its property, not from its essential nature, just as we define air by saying that it is that which animals breathe. Existence is a mark for entity, though it is not a mark for anything less general than entity. Whatever exists is an entity. Whatever is supposed to exist is an hypothetical entity. Whatever may exist is a possible entity.

Entity might also be defined, by its relation to our thought, as *that of which, or as if of which, we can conceive in any way;* or it might be illustrated and determined by enumerating its principal genera, — of which more presently. The word "entity" means the same as the word "thing" in its widest use.

We may think of things, or objects, or entities, without thinking of them as existing. We may do this with respect to any particular entity, and also with respect to entity in general. In a previous chapter we styled entity, as thought of without reference to its existence, *form*, and our conception of it *formal thought.* In the present discussion the word "form" will be used in a somewhat different sense from the foregoing; and our remarks will apply to entity whether conceived of as existing or without reference to its existence. Entity, or that which exists, in general, or any entity, may be considered in two ways. First, *we may regard it without thought of the distinctions between the particular or specific entities* included in it; in which case we may name it *simple entity*, or *entity per se*, or *matter*, or *materia prima.* Secondly, *we may conceive of it as being, or as consisting of, distinguishable entities;* then, and so far as it is thus considered, we may call it *form*, or *formal entity.* An object, every element of which is distinctly conceived of, is thought of wholly as form; but generally we conceive distinctly of an object only in part, so that the object is to us *part matter* and *part form.* Thus entity in general, or any entity, as conceived of in one way, may be all matter, and as conceived of in another way, may be all form; but generally it is both matter and form.

Neither the conception of entity as matter, nor the conception of it as form, of itself includes the idea of existence. But inasmuch as the question, Is there anything? which refers to matter, naturally precedes the question, What is it? which refers to form, the notion of existence tends to unite itself with that of matter, and to separate itself from that of form. Hence, sometimes, by the formal conception of a thing we may mean a thing viewed *with reference to its form only* and without reference to its existence or non-existence, or even simply *a conception of a thing as viewed without reference to its existence or non-existence.* This, though a natural metonymy, is a secondary use of language.

The *summa genera* of entity. They may be conceived of and enumerated in two ways. The radical and the quantitative enumeration.

Formal entity has been variously divided into *summa genera.* We propose the following enumeration without entering here upon any discussion of its merits, our present employment of it being only incidental: space, time, substance, power, action, change, quantity, and relationship. In this list each category is to be construed as exclusive of every other. Space and time must be thought of to the exclusion of their quantity, though quantity resides in each of them. Substance and power must be distinctly considered, though all power dwells either in mind or in matter, the only two kinds of substance known to us. Action is to be considered to the exclusion of the change which it produces, or tends to produce. And relation, — or, as we would prefer to say, relatedness or relationship, — which has no independent existence, must yet be independently regarded. Each of the foregoing elements, as distinctly conceived of, is a formal entity; thought of simply as entity and without reference to its distinctive character, it might be called a material entity. When, thinking of them successively, we say, "This is space, this is time, that is power, that is action," we identify each as a formal, with itself as a material, entity. Thus we define these entities to ourselves, or rather exercise determinate ideas about them.

The foregoing enumeration supposes an analysis of all objects into their ultimate elemental entities, and is the product of purely metaphysical thought. It presents seven fundamenta and the relations arising out of them and existing among them. Another logical division of entity, with another list of the elements of existence, results from an analysis of things not so searching as that out of which the enumeration just given originates. This second division is conditioned on the peculiar closeness with which quantity inheres in each of the other categories, so that it is difficult for us to think of them deliberately without thinking of them as having quantity, as being quanta. *The enumeration of which we now speak omits quantity as a separate element, but considers each of the remaining members of the first enumeration as having quantity united with it.* We have, therefore, as the quantitative elements of entity, space, time, substance, power, action, change, and relation. For relations admit of addition and subtraction, and of the more and the less, as well as the other forms of entity. Elements being quanta, or quantities, the relations of quantity exist between them, as do also other relations which arise among them by reason of their own proper natures.

Materia prima and *secunda.*

4. Comparing the quantitative elements of entity as to the respects wherein they agree, we find them alike in being conceivable as matter and as having quantity; but, aside

from quantity, they differ totally as to form. Now since entity, as characterized only by quantity, resembles entity as mere matter in being a constant factor in thought, and in being variously characterizable by the possession of form (for matter possesses form, though matter as such is not conceived of as possessing it), this community of nature or character may be indicated by calling entity merely as matter *materia prima*, and entity merely as having quantity *materia secunda*.

In the same manner we might speak of a *forma prima* and a *forma secunda*, the one of these consisting of elements as determined by the absolutely ultimate analysis of being, and the other of elements as presented by the quantitative analysis. At present we call attention to the fact that the idea of quantity has a special tendency to unite with our more indefinite conceptions; hence the use of such words as "something," "anything," "any one," and hence the derivation of the indefinite article from the numeral one; and we remark further, that for the analysis of ordinary thought *materia secunda* alone may be regarded as matter.

The logical conception of substance — that is, of a substantum, or of the subject of attributes — differs but little from that of *materia secunda*, of matter as having quantity. But entity, as substance, though regarded without any specific conception of form, is conceived of with a decided reference to its having *some* form; as is indicated by the construction of the word "substance." This is not the case with the notion of entity as matter. Substance, also, is generally conceived of as affected by numerical difference; for we speak more frequently of a substance, or of substances, than we do of substance simply. Matter, on the other hand, is more commonly spoken of in the general than as individual. Yet we may, in metaphysics as well as elsewhere, speak of "a matter" or of "matters;" and "a thing," using this term in its widest and most indefinite sense, may be defined as "a matter," or "a material entity."

Attribute, difference, characteristic, quality, and accident defined.

From the nature of the case, form cannot be separated from substance except in thought; by thought also it is united — that is, regarded as one — with substance. This union, as we shall see, is mainly identification, — the identification of a thing, as thought of in one way, with itself as thought of in another. Form considered as thus united to substance is called *attribute*. Regarded as the basis of the diversity of entities, it is named *difference*. As marking entity, so that objects are seen as having natures of their own, it is *character*, or *characteristic*. Simply as revealing the nature of an entity, it is denominated *quality*; this is its most radical and important aspect. And sometimes it is styled *accident*, this term being then employed in a wide metaphysical sense to signify that which in thought falls into union with matter.

It is evident that the several quantitative elements of any entity may be regarded as substanta. Each is a distinguishable quantum, and each has form and attributes of its own. Generally, however, when we conceive of a thing as a substantum — that is, as a *something*, distinguished from the qualities belonging to it — we are thinking, not of a single element, but of a combination of elements. The question then arises, Under what conditions is an assemblage of elements regarded as constituting a substantum, and as having the form or the attributes which we ascribe to it as such? We answer that this takes place whenever that assemblage, as constituting a metaphysical whole, is subjected to certain modes of conception and of abstraction, which we are now prepared easily to understand.

Substance and attribute defined in their relation to the metaphysical whole and its parts. The conception of them dependent on ultimate metaphysical analysis.

A metaphysical whole exists whenever a number of the elements of entity, conceived either absolutely or quantitatively, are united in some system of relations. As constructed out of elements absolutely ultimate, such a whole may be regarded both as being matter and as being form, this latter including quantity as one of its elements; or if the object should be regarded only with that thoroughly differentiating thought in which every element is distinctly conceived, and not also with that thought which regards entity aside from differences, it would be a whole of form only. With either of these wholes, whose elements are absolutely ultimate, ordinary logical processes are not directly concerned. They have to do rather with that metaphysical whole which is constructed out of quantitative elements, and not out of the absolutely ultimate elements of being, and which therefore may be conceived of as composed of a number of substanta, each element being a substantum. Such a whole, in its relation to our conception of it, may be said to include three sets of objects: for it contains, first, the several elemental substanta, or quanta, by whose union it is made to be a whole; secondly, the forms, or differences, belonging to these substanta severally; and, thirdly, the various relations whereby the substanta with their attributes are bound together into a system.

Directing our attention specially to these relations, we see that *they themselves may be regarded as substanta*, — that is, as being quanta, and as having form, or difference. Adding them in thought, so far as they are quanta, to the quanta between which they exist, and rejecting all thought of internal difference among parts or elements, we are enabled to think of the whole object *as one distinguishable quantum of entity, as a substantum*; while our formal conceptions of the several elemental parts, including the relations and excluding quantity, also unite themselves together and become *the formal, or attributal, conception of the whole*. According to the first of these modes of thought, we regard the object — say a ball — as a certain *something*; according to the latter, we think of all its properties, — its roundness, hardness, size, weight, color, — in short, of its entire character.

Such seems to be a satisfactory account of the formation and nature of the ideas of substance and attribute. At the same time, that general act of conception whereby the several quantitative parts are conceived of as constituting only one quantum, or substantum, need not, we suppose, be preceded by specific and distinct conceptions of those parts severally. We may concede to the mind the power of perceiving a complex whole, as such, immediately. But probably that abstraction by which the non-quantitative parts or elements are separated from the substantum, and thereupon and in their relation to it regarded as qualities or attributes, is conditioned upon quantitative conceptions of the parts. Be this as it may, it is clear that to conceive of a substantum, or thing, is to conceive of *a metaphysical whole, as such, but with neglect of any distinction of parts;* while to conceive of attributes is to conceive of *elemental parts in their relation to the whole, but with neglect of that element of quantity which is considered once for all in the substantum.* Thus both conceptions — that of substance and that of attribute — involve that extreme exercise of the analytic power of the mind whereby quantity, which is so intimately united with all other forms of entity, is yet distinguished from them.

Metaphysical and logical analysis.

That analysis by which an object is more or less resolved into the ultimate elements of its being (whether these be considered absolutely or as quantified) may be styled *metaphysical analysis.* By means of it the mind conceives more clearly of the nature of things, and advances in scientific knowledge. The other analysis — into substance (or subject, or thing, or substantum), and into form (or character, attribute, or quality) — we call *logical.* It is employed to facilitate the comparisons and reasonings of the mind. The first analysis refers solely to the nature of things, — it is objective; the second regards things in their relation to two opposite modes of thought, according to one of which an entity is form, or difference, while according to the other it is matter, or substantum. Both analyses pertain to the metaphysical, or elemental, whole.

Quantity and relation as attributes. Difficulties solved. Quantity, quality, and relation when contrasted.

5. When the different elements of being are considered in their use as attributes, two solicit attention because of difficulty likely to arise in respect to them. These are quantity and relation. As already explained, quantity is attributed to an object somewhat differently from the other elements. Each of these, ordinarily, is added in thought to the quantity which a substantum is already conceived of as having. But quantity itself must either be attributed to entity as *materia prima,* the most indefinite *it* of language; or if asserted of a substantum, or thing, as ordinarily conceived, must be predicated analytically, and not synthetically. As when we say, "Man is an animal," we add nothing to "man," but only indicate a part of his nature; so in saying, "A thing is a quantum," or "Everything is something," or "Everything has quantity," we do not enlarge, but explicate, our thought. But it is to be noticed that when definite conceptions of quantity are applied to a substantum, such attribution is not that of quantity simply, but that of certain relations or relationships between objects, growing out of their character as quanta. In saying, "The mountain is high," "The horse is strong," "The man is rich," the adjectives express not so much quantity as quantitative relations — relations of degree — determined by the comparison of objects as containing height, or strength, or the possession of means. Such a predication of relations is a true mental addition to a substantum as simply having quantity.

Relations differ strikingly from every other class of elemental entities. They excel all other elements in the variety and delicacy of their forms; and they have a peculiar dependence on the other elements for their own existence. The most radical relation of all is that of otherness, or numerical difference; for it is the condition of all others. Identity is not properly a relation, but simply the absence, or non-existence, of otherness as characterizing an entity. We often say that relations exist *between* two or more objects; and relations have been styled *intermediate entities*. But this expression is not literally true. Strictly speaking, nothing exists between objects as related, but *every relation consists of parts*, one of which resides in each of the objects.

For this reason the term "relationship" is preferable to "relation" as a name for the ultimate element of entity, a relation being composed of inseparably co-existent relationships. A cause has a relationship to the effect, and the effect has a relationship to the cause; and these two relationships together make up the relation of cause and effect. They arise immediately from the nature of action and from that of change. Action and change are the fundamenta of the relation.

The peculiarity of relationship as an attribute, however, does not spring directly from any of the foregoing considerations, but from its use in connection with the metaphysical whole. Every such whole consists in part of relations. So far as this is the case, relations, whether they be between and among the parts or be externally directed, are attributes just in the same way that the other elements are, and are so used by the mind. But when a whole is regarded as complete in itself, and as existing besides in a relation to some other whole, — for example, a dollar as in one's pocket-book, — *in this case relation is not a quality, or attribute, but a predicate-object, and what we commonly mean when we speak of a relation.* Thus relationship performs a double office in respect to substanta, and may be viewed in two lights, in one of which it may be a part or attribute or quality of the object, and in the other of which it may be distinguished from the object as being no part of it. No other element of entity has this double office in the same subtile way that relationship has; for none is ever a predicate-object save as it may be united by some relation to a whole, which it thereby qualifies.

To illustrate: the being a biped, or bipedality, is an attribute of man, though it involves the relation of legs to the rest of the body, and the relation of number expressed by the word "two," which is a particular instance of the relations of quantity, — that, namely, between two quanta of the same kind and one taken as a unit of measure. So "rich" indicates attribute, though it is essentially the relationship of a man to a large property of which he is owner. On the other hand, when we say, "The king is in the carriage," the relation expressed by "in the carriage" is no part of the king, but only something predicated of him. Thus *relation, though sometimes an attribute or quality, may often be contrasted with attribute, and generally is so contrasted save when a whole is considered analytically*; then relation and attribute are often found to be identical. Objectively speaking, the predication of it as an attribute is identificative; it identifies relation as form with part of the matter of the substantum. But the predication of it *as a relation* — that is, a relation outside of the whole — is additive. Relationship, as part of a whole, is so united in our conception with other more prominent parts that its proper character is easily overlooked or misconstrued. It generally enters our thought only as a part of some attribute or quality. But it receives its proper name when considered by itself, which especially happens when it is expressed by a preposition. Thus the notion of "neighbor" includes a relation as an attribute, or as part of a complex attribute; while the expression, "He dwells (or is a dweller) near me," more distinctly sets forth the relation as such.

The foregoing remarks indicate how quantity, quality, and relation are contrasted in our minds, in their use as things predicable, and how, at the same time, there are cases in which both quantity and relation must be regarded as qualities or attributes. They show also how the distinction, or contrast, with which we ordinarily view these predicables refers not so much to their own nature as to the mode of our thinkings.

CHAPTER XXVIII.

GENERALIZATION.

Generalization related to abstraction. General notions defined.

1. GENERALIZATION is a process allied to abstraction, and might be considered a species of it. Generalization includes what we ordinarily mean by abstraction, together with a further process radically of the same nature. Each of these constituent processes involves the retention of part of a thought and the rejection of the rest. But the part specially rejected when we generalize is quite different in its signification or objective force from that rejected when we merely abstract; and the rejection of it is attended with peculiar results. For these reasons it is well to consider abstraction and generalization as distinct processes.

Of all the secondary powers of mind, generalization has the most immediate bearing upon the philosophy of the ascertainment of truth and the construction of science. An understanding of the doctrine of the general notion is the key which unlocks the principal mysteries of logic; and it is the explanation of the fundamental laws and forms of scientific thought.

General ideas are those which can be applied to any one of a class of similar objects simply on account of their similarity. The notions "horse," "man," "strong," "wise," "walk," "think," "certainly," "quickly," "homeliness," "beauty," "fear," "force," and the immense majority of conceptions expressed by single words, are general. We have general notions, not only of logical substances, or substanta, but also of attributes and of adjuncts and of abstract substanta. Combinations of thought and statements of truth may also be general, — as when we say, "The strength of the horse," "The value of money," or "The wise man speaks wisely," "The rose is the most beautiful of flowers." Every mode of conception and every construction of ideas setting forth the nature of things may assume the form of generality. But as the character of attributes, adjuncts, and predications is determined by that of the substanta to which they are attached, our discussion must mainly concern the generalization of *substantal* notions.

The singular notion defined. Singulars distinguished from individuals.

Ideas which correspond to one object only, and cannot be applied to different similar objects, are styled *singular*, as having that in their signification which is wholly singular or peculiar. When some singular object is thought of simply as a singular object of a certain kind, we call it an individual; and our conception of it may be styled an individualized conception. If, instead of speaking of man in general, we should mention some one person as "the man" with whom we had some transaction, or as "a man" of whom we heard once, the expressions "the man" and "a man" would stand for individualized notions. Such notions result ordinarily from applying a general notion to an individual object; in other words, from thinking of the object by means of a general notion which corresponds to it.

All singular objects are called *individuals,* because they cannot be divided into members in the same way that classes of similars can. When, however, the singular is contrasted with the individual, the latter signifies a singular object considered with reference to some general character, while the former sets forth the singular object with reference to its own peculiar characteristics. Cæsar, simply as a man, is an individual object; Cæsar, as Cæsar, is a singular object. In this way individual — or, more properly, individualized — notions are contrasted with singular. But without this contrast, expressed or understood, the singular comprehends both the singular and the individual.

General notions are expressed by the common noun used without addition, as "horse;" individualized notions, by this noun accompanied or affected by an individualizing addition or adjunct, — for example, "a horse," "horses," "this horse," "these horses;" singular notions, either by proper names or by the common noun with some singularizing adjunct, as "The king" (that is, the definitely known king), or "Alexander," or "Alexander's horse," or "Bucephalus."

The terms "universal" and "general" are opposed to the terms "individual" and "singular." Either of the former may be opposed to either of the latter. But the term "universal" is more frequently used when the contrast is with singular or individual objects, and the term "general" when the contrast is with singular or individual conceptions. "Man" stands for an "universal" *object*, and expresses a general *notion*. The word "general," being derived from the Latin *genus* (γένος, a kind), signifies what belongs to every one of a given kind of objects. This, its original and philosophic meaning, is to be distinguished from that signification in common use, according to which whatever is true for the most part of some class of things is called general; as when we say, "Savages generally (that is, for the most part) are treacherous."

Modes of expressing general notions. Proper and improper.

2. A general notion may either be conceived simply, or it may be conceived as contrasted with other general notions, and as definitely distinguishing some given kind of thing. The proper expression of it when conceived in the former way is the common noun without the definite article or other addition. "Man," "gold," "virtue," "heat," "malleability," are words each of which of itself expresses a general idea in its purest or simplest form. The expression for a general notion, conceived as having a distinguishing power, is the common noun with the definite article prefixed. Such designations as "The horse," "The dance," "The church," "The state," "The pulpit," "The press," "The theatre," and many like them, may serve as illustrations. The significance of the article when thus employed is quite different from its force in pointing out an individual either as definitely known or as definitely related. While it attaches itself to general ideas, it does not form any part of them. It is especially employed when the mind opposes some one kind of thing to others of the same generic nature. When we speak in the general of "the pulpit," we mean that agency of public impression as contrasted with the press, the theatre, and other agencies. "The dance" is thought of as an amusement and in contrast with other amusements. As every general notion may be conceived either *per se* or as distinct from other notions, a choice becomes possible between the defined and the undefined modes of thought and of expression. Some languages, as the French and the Greek, prefer the defined; others, as the Latin and the English, the undefined. German occupies a middle ground. These differences arise from peculiarities in the mental habits of each people.

Beside the two proper modes of expressing general notions, several secondary, or improper, modes are of frequent use. The tendency of the mind is to avoid the general and abstract, because removed from a view of things as actually existent, and to employ modes of thought in which the general conception is presented rather by implication than expressly.

For example, individualized notions are employed instead of general ideas; and this sometimes in the singular number and sometimes in the plural. We say, indifferently, "Man must die," "A man must die," and "Men must die;" or "The horse is a noble animal," "A horse is a noble animal," and "Horses are noble animals." In each case we utter and intend to utter, a general truth. But when using the indefinite terms "a man" and "men," we do not present the truth in its naked generality; we give an immediate inference from the general truth, from which inference, also, that truth itself may be immediately inferred.

Hence such statements themselves are often styled *general.* When the indefinite article occurs in them, it differs from the singular number of the adjective "any" only in being a less emphatic expression of individual indefiniteness; the plural of nouns signifies that what is said applies to any number or to all of the things of the kind named. What is necessarily true of any kind of thing is true of any individual or of any number of individuals of the kind; and what is necessarily true of any individual or any number of individuals of a given kind, simply as being of that kind, must be true of that kind of thing in general.

Another secondary and inferential mode of expression is found in universal statements respecting the members of the *logical class.* All the objects to which the same general notion is applicable may be considered as constituting one class. Whatever is true of that general thing, or that kind of thing, which the notion represents, must be true of every member of the class and of all the members individually; and whatever is true of every member of a logical class, or of all the members individually, simply as being things of a certain kind, must be true of that kind of thing in general.

Hence we have such statements as "Every law-breaker should be punished," "All judges should be just;" in which class-conceptions take the place of the general notion.

Limited generality, statements of.

Sometimes a statement in one of the forms of universality which we have now considered, evidently is not literally true. Should we say, "The horse is a useful animal," it might be objected that some horses are utterly vicious, wild, and unusable. The fact is that such statements are made with an understanding which limits their application; they express, therefore, what is universally true within a given sphere. Horses are useful always under the circumstances in which the speaker conceives of them, — that is, as ordinarily to be met with and observed. These statements of limited universality may always take this form, "Things to be supposed being supposed, such and such is universally the case." We say, "The grape is a luscious fruit," — that is, of course, always when it is ripe and in good condition. Because such expressions, when interpreted without an interpreter, when considered as unqualified, though they need qualification, are not strictly universal, the term "general" came to signify that which happens for the most part. Here, also, we must allow, what shall be seen more clearly hereafter, that the general notion — that is, *the notion expressed by the common noun — does not always or necessarily involve the universality of the predication of which it may be the subject.* This really results from the necessitudinal character which ordinarily belongs to such predications.

The distinction between general and individual, or singular, ideas, even when the latter are used in indefinite or universal expressions, as equivalent to the former, is essential to an understanding of the nature of the general notion. This distinction is recognized in the forms of language; but the nature of it will become more apparent if we consider that process, called *generalization*, by which the mind produces its general thoughts or notions.

The process of generalization described and defined.

3. This process, as it ordinarily takes place, is often and correctly described as follows: —

First, a number of objects are perceived to be similar to each other in one or more respects. Ten, fifteen, twenty, or any number of cherries, are seen to be alike in their form, size, color, taste, contents, origin, and use. That act of the mind whereby its thought is intentionally exercised regarding objects, in order to discern their points of likeness and of unlikeness, is called *comparison*.

Secondly, the perception of similarity obtained by comparison is followed by an act of abstraction, whereby the objects compared are thought of only as to those characteristics or parts in which they are alike, all other characteristics being rejected from consideration. We have now still as many ideas as there are objects, but every idea is precisely similar to every other. Our conceptions, at this stage, of fifteen or twenty cherries are very similar to what our perceptions of the same number of cherries would be, were the cherries arranged in a row at such a distance from us that no difference in size, or appearance, or any other particular, could be noticed between any two of them.

Thirdly, some one individual object, selected at random, is thought of in the special or abstract view taken of it; or all the individuals are thus thought of at once, under one plural conception, — that is, we think of one particular cherry as this or that cherry simply, or of all the cherries, collectively, as those cherries. For a plural conception, in which we think at once of many things as many, is not composed of many unital conceptions, though it may be derived from them, but is the same as a unital — that is, a grammatically singular — conception, save only that the element of plurality has displaced that of unity.

Fourthly, the mind, taking either of these last-described conceptions, rejects from it the element of individuality. Thereupon we think, not of any individual cherry, nor of any number of individual cherries, but simply of "cherry," or of "the cherry."

The essential point in generalization; the specific difference of this process.

The first two of the foregoing steps, and likewise the last two, may, if we please, be naturally regarded as one. Generalization, therefore, may be described as containing two successive parts or stages, in the first of which we consider a number of similar objects abstractly and only so far as they are similar, and in the second of which we discard the element of individuality from the conception either of one object or of several.

This second step is the essential part, the specific difference, of the process of generalization; it may be illustrated by a mental experiment. Let us suppose ourselves to inspect, successively, a number of ships at a seaport town, so as to have a correct and distinct idea of each. Let us imagine, also, the whole fleet to have set out to sea, and to have attained a distance at which each ship can be seen plainly, yet not with sufficient distinctness to be recognized by means of its own peculiarities. Our perception of the vessels is now quite undefined as compared with the views obtained in the harbor, yet it is still a perception of individuals; we see this ship, that ship, and the other, sailing before us. Now, shutting our eyes, let us take the thought of any one ship, or of several, and let us eliminate from this conception all reference to individual difference, and all thought of the fact that individual peculiarities must and do exist. There remains the general notion, "ship," or "the ship."

The thought of similarity not included in the general notion.

In order to an understanding of the process of generalization, certain points are worthy of special consideration. In the first place, let us notice that the thought of the similarity found to exist between the objects compared does not enter into the general conception as a component part of it. The general notion includes the respects wherein the objects are alike, but not their likeness. Similarity furnishes a rule to be observed by the mind in the process of abstraction, but is not itself one of the elements abstracted. After the completion of the generalization, all thought of the comparison may be dismissed, just as a scaffolding no longer needed may be taken away.

Generalization possible without comparison.

This introduces the remark that generalization may take place without any comparison at all, and from the consideration of only one object. It is only necessary that we should conceive, more or less fully, of the object, and then reject from our conception the thought of individual difference or peculiarity; for in this way we can obtain a notion applicable to any other object which may be similar to the one considered so far as it is considered, — that is, a general notion. A geologist finding a specimen of rock such as he has never seen before, may truly say that he has discovered a new kind of stone. Commonly, however, the comparison of individuals is requisite for the exact establishment and definition of any existing kind of thing.

We do not think the similar as the same, or the many as the one.

Some writers, referring to the exclusion of all thought of individual difference, have said that in generalization we think the similar as the same and the many as the one. Such language is not strictly true, and is calculated to perplex. There is a sense in which it may be accepted; but, taken literally, it suggests either that a number of different things can be condensed together so as to form one of their own number, or that, against reason and fact, we can think of them as if they could. The mind in generalization does not judge and accept the many and different to be one and the same, but rather rejects all thought of their number and difference, and no longer thinks of them, or of any one individual object; but thinks *that one thought which remains*, and which, in a certain peculiar, secondary, and figurative sense, may be said to have an object — one object — of its own.

Lastly, we must qualify the statement that the final step in generalization is to reject all thought of individual, or numerical, difference. This is an essential step, but it is not always the final one; for we generalize not only from individuals but from kinds, and thus one general notion may be formed from others more specific. From horse, dog, cat, fox, lion, tiger, and other four-footed beasts we may form the conception "quadruped." In such a case we discard only formal, or specific, not individual, or numerical, difference; the individual difference has been eliminated already. This generalization from kinds is sometimes distinguished as generification.

We may indeed form generic notions *from those of specific classes of things*, and in that case, of course, we discard the individuality ascribed to classes and their members; but this is not that generification to which we refer, and which generalizes directly from general notions.

The general object, or universal. Is constantly mentioned, yet has no real existence. Analogous to the ideal object.

"Omne quod est, eo quod est, singulare est." Boethius.

4. Having considered general notions, and the mode of their formation, we proceed to inquire concerning general objects, — or universals, as they have been styled by philosophers. The true doctrine concerning universals is not only interesting in itself, but also contributes greatly to an understanding of the nature and functions of the general notion.

First of all, it is to be premised that in some sense or other we may speak of general objects. We constantly mention such things. We say, "Man is mortal," "War is a dreadful evil," "Virtue is the highest good," "The pulpit and the press are potent in a free country," "The human soul is godlike and immortal." It would be folly to say that those who make such statements are not, in any sense, thinking about anything, — that their conceptions do not, in any sense, have objects. Several theories have been held in regard to the significance of that thought which is expressed by general language; but one of two views must be correct. Either it sets forth objects which exist as truly and literally as the mind itself does which thinks of them, and as those individuals do which the mind perceives and knows to exist; or it may be held that our thoughts and statements, as about universals, are *secondary modes of mental action, based upon, and referring to, our thinkings concerning real objects, yet not of themselves setting forth any reality.* In other words, general may be supposed to be analogous with ideal objects, of which we speak as if they really existed and acted and were related variously, when in truth they do not exist at all.

Of these contradictory views the second alone, in whatever light the matter may be regarded, is worthy of acceptance.

The universal an impossible entity.

For, first of all, to suppose the reality of universals would lead to great absurdities. Take any general object, as "animal." We ask, Where, when, and how long has it existed? Who ever saw it? What is its position as a part of the universe of actual being? Clearly no place or period can be assigned to it unless we say that it exists everywhere and always; for whatever exists at any particular place or for any given time is and must be an individual object. But what absurdity to think of an eternal and omnipresent animal!

Nor does it help the matter to say that the general animal exists in every individual animal. For we can conceive of animals that have no existence, such as unicorns, winged horses, great sea-serpents; yet such animals would include the universal. And further, although every animal has that in it which corresponds to the general object, and may be conceived of by the application of a general notion, still, properly speaking, it does not include the universal, but only that which corresponds to it. Every part of the nature of any individual animal is individual, not universal; and the general notion when applied to any individual or to any number of individuals, receives an addition whereby it ceases to be a general, and becomes an individualized, notion. Moreover, the general object "animal," if it exist, is but one object; but if it exist in many different animals, it must do so *as the many and the different.* And so a case arises in which many and different objects are, without any change of meaning, one and the same object. This is an impossibility. Hence those authors who say that in generalization we think of the many as the one, of the similars as the same, swerve from literality. Their language resembles that employed when we speak of certain things which have similar natures as having *one common nature;* just as if a nature were like a piece of land, or other property, which several persons may own in common.

The only literal truth in the case is that the objects, by reason of their similarity, are related to *one and the same notion,* so that it may be applied to each of them, and is therefore *a common or general notion.*

The true character of universals shown from the genesis, nature, and use of the general notion.

In the next place, the genesis and essential nature of the general notion, and the manner of its employment by the mind, show how it comes to be formed and used without having any object of its own. General notions are a secondary mode of thought, and are derived by a process of abstraction from individual or singular conceptions. This derivation, as that also of generic from specific conceptions, can often be actually traced, and always satisfactorily accounts for the origin of the notion.

Many, both in ancient and in modern times, have taught that some of our abstract ideas, and particularly those of a moral nature, are innate, and born with the soul; and they have given the mind a power of perceiving certain kinds of general truth by "the immediate intuition of the reason." It is sufficient to say that such doctrines have almost entirely disappeared, as the progress of philosophic investigation has shown them to be unnecessary and unfounded. The power, first of perceiving individual facts and objects, and then of forming from these perceptions general truths and notions, is, we believe, inborn; but the development and exercise of this power do not presuppose the actuality of any general object.

The subordinate character of the general notion and its essential nature.

Moreover, not only are general notions derived from perceptions and conceptions of individual objects; they also are used exclusively with reference to individuals: their whole value and force lies in their applicability. It is by means of these notions that we are informed regarding the nature of individual things. The general conception being applied to one or more objects, we understand what it or they may be; we can say, "It is an animal," or "They are animals."

Then the general notion enables us to form judgments regarding individuals, because whatever is true of the universal, by reason of some necessity which attaches to it, must be true of every corresponding individual. The truth that "animal life is supported by food" is valuable, because we may infer from it immediately that this or that animal, these or those, some or any or all, animals, live by means of food. The general, or generalized, judgment is simply an instrumental and intermediate state of mind which frequently intervenes between the perception of necessity in some individual case or cases, and the assertion of necessity in some other similar individual case or cases.

Finally, the general notion is used in indeterminate thought; and in this, especially, its character, as wholly subordinate to the individual conception, is strikingly manifest. For the universal is often made the subject of statements which cannot be regarded even as propositions of limited or conditioned generality. We can say, "The trotting horse has now attained the speed of a mile in less than two minutes and a quarter," or, to use a nobler illustration, "Man measures the weight of the sun, and the distance of star from star." In such statements as these, it is equally evident that the subject is an universal, and that it is not conceived of as having a separate existence of its own. The facts presented concern only certain individuals of a class; it would be absurd to assert them of any separate and universal entity.

Predications like the foregoing, which are not uncommon, throw light on the true nature and significance of the general notion. They show that it is an abstract and indeterminate mode of thought which the mind always refers or applies to individuals more or less immediately, and which always has universal applicability, yet is not always used as having it. For not every trotter attains the speed mentioned, nor is every man an astronomer. From all of which we gather that the character and name of universal, or general, are derived rather from the chief property and principal employment of the notion than from its essential nature.

When we say, "Man calculates eclipses," the term "man" expresses what we commonly mean by a general idea; yet in this statement the idea is not general or universal, but only abstract and indeterminate. Of itself it does not include reference to the many or to the few; it simply presents its own contents. We are told that human beings calculate eclipses; whether many or few of them do so, or even only one, is no necessary implication of the general notion.

In view, therefore, of the origin, use, and radical nature of general conceptions, we conclude that there are no general objects to correspond with them, that universals, as such, are unreal entities, and that in thinking as if of them, we do not think of realities at all, but only in a way similar to, and correspondent with, our conception of real objects. In accordance with this we find that men, in ordinary speech, never make independent mention of general objects, or universals, as if they were a distinct class of entities, but only use terms setting forth indeterminate notions which may be applied to individual objects.

CHAPTER XXIX.

REALISM AND NOMINALISM.

The history of opinions concerning universals. Pythagoras. Socrates, Plato, Aristotle, Zeno, Porphyry.

1. THE discussion of the general notion would not be complete without some reference to the history of opinions concerning universals. This exhibits a gradual advancement in the apprehension of truth, together with some movements of a mistaken or retrograde character. The school which Pythagoras founded, five hundred years before Christ, was the first to give formal expression to the error of attributing reality to universals; but the earliest extant teaching of this doctrine is to be seen in those writings which Plato composed about one hundred years after the death of Pythagoras. Socrates, the master of Plato, had insisted upon the necessity of our attaining correct conceptions of the permanent and the important by observing in individual cases what may be essential to any given kind of thing. This teaching was developed and enforced by Plato in his doctrine of ideas. But the term "idea," as employed by Plato, meant something wholly different from what we now understand by it. He contrasted the idea (ἡ ἰδέα, τὸ εἶδος) with the conception (νόημα), and meant by it the *object* of the conception. The genius and aims of this delightful writer are moral rather than metaphysical: yet his statements imply that ideas have an existence of their own, separate from the mind and from individuals; that ideas alone are true, incorruptible,

and imperishable entities; and that the passing objects and phenomena of the world derive the laws of their existence from these ethereal ideas.

Aristotle, rejecting Plato's doctrine, denied that ideas, or universals, exist separately from the individual; yet he was far from refusing them a reality. He did not see that the distinction between matter and form which we make and use in our ordinary thinkings, represents no external, or objectual, difference of things, or parts, or elements, but only sets forth the very same things in their relations to two different modes of thought. He accounts for the generation, or the becoming. of things by the union of matter and form, as two elements externally distinguishable. But he asserts that form never exists save in union and co-operation with matter, and that matter never exists save in similar union with form. Moreover, what is general or universal is formal, and never exists separately, but always is uniting variously with matter so as to produce the individual.

The inextricable confusion of the Aristotelian metaphysics is to be traced chiefly to the misapprehension of the true nature of such distinctions as that between matter and form; and if to this cause we add the influence of ambiguous terms, it will be entirely accounted for. As an instance of the latter, the word *οὐσία*, which may mean either a substance in the narrow or metaphysical sense, or a logical substance, or the essence of a thing, or an entity, or a real existence, or any one of these in the general, constantly operates, in the writings of Aristotle, as a philosophic stumbling-block. The obscurity of ancient metaphysical teachings, with their imperfect distinctions and yet more imperfect terminology, can be appreciated by those only who may endeavor to comprehend them.

It is said, without much evidence, that Zeno and the Stoics denied the reality of universals. Be this as it may, the question descended from the more ancient philosophers as a legacy to their successors. In the third century of our era, Porphyry, a Neo-Platonist, who taught philosophy at Rome, mentions certain inquiries concerning universals as too profound for his discussion. These were, "*Whether genera and species subsist in the nature of things or in mere conceptions only; and whether, if existent, they are corporeal or incorporeal; and whether they exist separately from sensible objects or not.*" In Neo-Platonism, at Rome, Athens, and Alexandria, the philosophy of the ancients exerted its last independent activity.

The scholastics: Roscellinus, Abelard, Albertus Magnus, Thomas Aquinas, William of Occam.

The scholastics — that is, the great Christian teachers of the Middle Ages — earnestly discussed the nature of universals; with them this subject was closely connected with the doctrine of Divine creation and government. *According as they asserted or denied the reality of the universal, they were classed as realists and as nominalists.* In the eleventh century Roscellinus maintained nominalism, but his eloquent disciple, Peter Abelard, advocated a kind of moderate realism; and from that time till towards the close of scholasticism, the doctrine of Abelard generally prevailed.

It is, however, simple justice to say that the teaching of the mediæval thinkers was different from that either of Plato or Aristotle, and vastly to be preferred. Albertus Magnus held that universals exist *ante rem* in the Divine intellect, *in re* in the individual object, and *post rem* in the human intellect by reason of the power of mental abstraction. His great contemporary, Thomas Aquinas, taught that "forms which exist in matter have come from immaterial and separately existing forms, which, however, subsist not in themselves, as Plato says, but in the Divine mind, and derive their causing power from Heaven." Finally, in the fourteenth century, William of Occam revived the nominalist doctrine, and asserted that singulars alone exist, and that such things as universals, even as mental conceptions, are wholly without reality. His views were favored at the universities, but caused great commotion in Church and State. The Emperor Lewis of Bavaria protected the followers of Occam, while Louis the Eleventh of France sided with the Pope, and persecuted them.

Modern nominalists: Hobbes, Berkeley, Hume, Stewart, Campbell, Hamilton.

In later times nominalism found a powerful advocate in Thomas Hobbes, the contemporary and friend of Lord Bacon. "If," says Hobbes, "one should desire the painter to make him the picture of a man (which is as much as to say of a man in general); he meaneth no more but that the painter should chuse what man he pleaseth to draw, which must needs be some of them that are, or have been, or may be; none of which are universal. But when he would have him to draw the picture of the king, or any particular person, he limiteth the painter to that one person he chuseth. It is plain, therefore, that there is nothing universal but names; which are therefore called indefinite, because we limit them not to ourselves, but leave them to be applied by the hearer." To us this illustration seems an unfortunate one for its purpose. A painter might make an outline image which, without being the likeness of any particular man, would serve to call to mind some one of our race; and if this be so, may not the human mind have the power of forming an indeterminate notion, which is not the conception of any individual man, but yet is applicable to any?

About one hundred years after Hobbes, nominalism was elegantly set forth in the writings of Berkeley and Hume. In the present century it has been defended by Stewart, Campbell, and Hamilton. But these last-named authors, as well as others of an older date, really modify their teaching so as to concede to the mind a power of general thinking. *The inevitable difficulty of strict nominalism is that it sets aside, instead of explaining, a well-known mental phenomenon.* Those who institute inquiry by a scrutiny of consciousness must see, more or less clearly, that we have general notions.

Hence every argument for nominalism may be turned against itself. Berkeley says: "The idea of a man that I frame to myself must be either of a white or a black or a tawny, a straight or a crooked, a tall or a low or a middle-sized, man;" which language can only mean that our idea of a man must be *the idea* either of a white or a black or a tawny man, and so forth. But the simple fact is that we constantly do think even of an individual man — much more, therefore, of man in general — without thinking of the determinations of singularity. Things cannot exist without determinations, but they can be conceived of without them. At the present day nominalistic views are held only by certain associationalists, sensationalists, and materialists, whose systems produce an incapacity for understanding the more delicate phenomena of psychical life.

Modern realism. Spinoza, Schelling, Hegel. The last expiring effort of the ancient metaphysics.

Since the inauguration of modern philosophy in the seventeenth century by Descartes, the influence of realism has been notably manifest in the pantheism of Spinoza, and yet more in that of Schelling and of Hegel.

Spinoza's radical conception, the unity of substance, was immediately based on the scholastic definition, "Ens per se subsistens," but was wonderfully supported by a philosophic error that can be traced to a very early day. For Aristotle himself, following Parmenides of Elea, identified existence with unity, and taught that the science of entity is the same as the science of unity, and that in some sense the existent, as such, is also the one. This obscure doctrine, which sounds absurd in modern ears, found support in the ambiguity of an idiom in Greek. Often in that language general attributal notions are expressed by the neuter singular of adjectives accompanied by the definite article. Τὸ ἀγαθὸν and τὸ καλὸν signify excellence and beauty. In the same way τὸ ὂν and τὸ ἓν are employed throughout the metaphysics of Aristotle to signify existence and unity. These meanings were perfectly allowable; and it is evident that they do not present realities, but simply abstracta or universals. But the expressions τὸ ὂν and τὸ ἓν may also be taken in an actualistic sense, and as having the individualizing, instead of the merely distinguishing, force of the article; in that case τὸ ὂν would mean the only existing being, and τὸ ἓν the only one being, the only one unit. But these must be identical. Therefore, simply allowing that these expressions set forth realities, we must admit their teaching that there is one being only.

Aristotle was too sensible a thinker to carry out this doctrine fully; but Spinoza found no difficulty. Giving objectual reality to the general abstract ideas of *the unit* and *the existent*, as if each were one individual object, and the only one of its kind, he thereupon identifies these things. For if the unit be the only *one*, there can be no existent beside it; and if the existent be the only *being*, there can be no unit beside it. Hence the identity of τὸ ὂν, τὸ ἓν, and τὸ πᾶν; hence the impersonal pantheistic substance.

The continued attribution of reality to universals, even after they were no longer granted an existence apart from intellectual activity, left the way open and ready for the heresy of Schelling and Hegel. They declared and maintained ably that object and subject, the real and the ideal, thoughts and things, nature and spirit, are identical. Hegel treated *being* — that is, general attributal existence — as a real object, and found in it the power of evolving out of itself, and as parts of itself, all other things and combinations of things. Thus modern genius unconsciously produced a gigantic system of delusion out of the ancient metaphysics. The philosophic pantheism which prevailed in Germany at the beginning of the present century is a notable instance of the fact that the doctrine of realism, whenever logically followed out, leads into a labyrinth of error.

Some, however, have called themselves realists, and some yet do so, who scarcely deserve the name. To hold that classes of similars, corresponding to general notions, actually exist, and are not mere creations of the intellect; to teach that many things in their individual natures have a power of producing their like, and of perpetuating their kind; to believe that general conceptions dwelt in the Divine spirit prior to the existence of organized beings; and to hope that by the study of the universe we ourselves may seize and think the thoughts of God, — these are things entirely consistent with the doctrine of the non-reality of universals.

Conceptualism. Locke, Reid, etc.

John Locke — who was eighteen years old when Descartes died, who was born in 1632, the same year with Spinoza, and who died in 1704, twenty years before the birth of Kant, and seventy before that of Schelling — was probably the first of modern philosophers to state clearly the true doctrine concerning general ideas. Before his time conceptualism, as it has been called, had found advocates, but had not attained any established position, in the world of letters. "General and universal," says Locke, "belong not to the real existence of things, but are the inventions and creatures of the understanding, made by it for its own use, and concern only signs, whether words or ideas. Words are general when used for signs of general ideas, and so are applicable indifferently to many particular things; and ideas are general when they are set up as the representatives of many particular things: but universality belongs not to things themselves, which are all of them particular in their existence, — even those words and ideas which in their signification are general." Had Locke, in addition to the foregoing, clearly seen and taught that ideas, whether general or singular, are simply the states or actions of the soul in thinking, and that an idea is never, in any true or literal sense, the object of itself, the philosophy of the eighteenth century might have been saved from much useless and extravagant speculation. As it was, Locke's doctrine has prevailed. Adopted and improved by Reid, it was defended by him against Berkeley and Hume; and *at the present time conceptualism is upheld by the general assent of philosophers*, though even yet some scarcely comprehend how we can think as if of objects when no objects corresponding to our thought exist.

The laws of existence defined. They are general and unreal objects.

2. Most general statements are intended as necessitudinal and hypothetical predications. This is often the case even when they include also an actualistic reference or implication. So far as general statements are hypothetical they are said to express laws, — that is, either the laws of entity in general, or of some kind or department of existence. It follows, therefore, that, in strict truth, *the laws of being, in all its departments, are not real but general things, or universals.* They are not even ideal individualities. A law of existence is a general case of antecedent and consequent; and the truth of the statement expressing it lies in this, that a real and individual fact corresponding to the general consequent necessarily exists whenever there is a real and individual fact corresponding to the antecedent. Hence we say that general scientific statements express laws and not facts. Similar remarks apply to

moral and governmental law as a general mode of conduct prescribed for us by some authority or necessity. It has no more reality than those general forms, or modes of existence, which are necessitated by general antecedents. Therefore the legal profession properly distinguish between fact and law. But sometimes by a law we mean the mental or verbal statement of some mode of conduct prescribed by authority or duty; and in that sense a law may be individual and real.

3. Along with the truth that universals do not exist, we may consider the correlative doctrine, which Locke maintains, that "*all things that exist are particulars,*" — that is, individuals. By this it is not taught that we cannot think of — that is, *as if of* — individuals which do not exist, but only that whenever anything really exists, it is an individual.

That only individuals exist, naturally follows from the non-reality of universals; for whenever our thought leaves the general, it necessarily returns to the individual. It must therefore find the real in the individual, or not at all.

This doctrine, however, does not stand in need of extrinsic proof; it is self-evident. Every object that is perceived to exist *is perceived also to have individuality and form, or nature.* As individual, it is perceived to be the same with itself, and to differ from other objects in being other than they; this is individual, or numerical, identity and difference. As having form, or nature, it is perceived to agree with other objects of a similar form, and to differ from other objects of a dissimilar form; this is formal, or specific, agreement and difference. Not only substances, but spaces, times, powers, and, in short, all kinds of entity, are thus characterized. That only individuals exist, or can exist, may be accepted as a simple and ultimate law of being.

The *principium individui* is a simple and ultimate law of being.

In mediæval metaphysics there was much discussion concerning the *principium individuationis*, or origin of individuality. This naturally attended realism. For on the supposition that a universal really exists and is the basis of the individual existence of all things of a given kind, the question arises, How is the individual produced, or formed, from the universal? But when realism is rejected, there is no place for such an inquiry.

Individuality, as a necessary characteristic of all entity, can be produced or destroyed only so far as entity can be produced or destroyed. The individuality of God, of spaces, and of times is not produced at all; for these objects are not produced or producible. But the individuality of created objects and of their relations necessarily comes into existence with the objects themselves.

The terms "conception" and "notion."

4. In the present and previous discussions we have used the term "conception" as a general word applicable to either the power, the process, or the product of the mind in the formation of its ideas, whether singular or general. On the other hand, the term "notion" has been for the most part restricted to general ideas, though it naturally applies also to those indefinite individualized conceptions which are so closely allied to the general. In this use of language we have been governed partly by necessity and partly by propriety. Of late years, especially since the days

of Hamilton, many have applied the term "conception" to general thinkings only. This is a departure from earlier usage and from that still employed in common speech, and, without any sufficient reason, deprives philosophy of a most useful word. "Conception," being derived from *concipere*, "to grasp," properly denotes any thought, but especially any synthetic thought, in which the grasping, or comprehending, power of the mind is exerted.

CHAPTER XXX.

THE PHASES OF INTELLECT.

Three grand phases of mental life distinguished and accounted for.

1. IN order to the attainment of that degree of intellectual development and efficiency which characterizes the human mind, there is need of a threefold work, and consequently of an ability, on the part of the soul, to act mentally in three diverse ways. First of all, we must be able to perceive such objects as come within the range of our immediate observation; for without such a power we could have no ideas at all. Secondly, we must be able to recall and control the ideas and the knowledge gained by this perception of things; otherwise our thought, dying the instant it was born, would serve only as a momentary illumination of our darkness. Finally, we need a penetrative and comprehensive power of mind, — a power whereby the *nature* of things may be clearly understood and correctly reasoned from; without which we would be incapable of intellectual progress and of the management of affairs. Corresponding to these necessities, and, in a sense, originating from them, are the three grand phases of mental life, — *the perceptive, or cognitive; the reproductive, or representative; and the discursive, or rational.*

These phases have so many attributes in common, and each of them comprehends such a variety of modes, that they are distinguished more easily by a reference to the necessities in which they originate and the ends which they serve, than by any internal characteristics. In this way, we believe, our ordinary conceptions of them are formed. At the same time we should seek accurate ideas of the diversities of these phases considered in their own character as aggregates of mental operations.

No one of them is distinguishable from the others by any radical or generic diversity in the powers productive of it. Not only thought and conviction, the primary powers, but also attention, suggestion, synthesis, analysis, abstraction, conception, generalization, — in short, all the secondary powers, — are involved, to a greater or less extent, in each of these general modes of mental action. Yet in each phase our powers, being exercised under special conditions, act also in peculiar or specific ways. A critical consideration of these peculiarities of action may lead to an exact conception of internal or essential differences. Using this discriminating care, we will first avoid some mistakes of confusion, and will then attempt the definitions we desire to make.

Misconceptions to be avoided. No phase is the exclusive field for the operation of any fundamental power.

First of all, we must bear in mind that one phase of intellect may be distinguished by the special or prominent exercise of some power, without being the only or exclusive field for the exercise of it. The use of general conceptions and the formation of inferences from them are prominent features of the discursive phase of thought; but they also occur in certain modes of sense-perception, and in that style of reproductive thought which is called *imagination*. In like manner the power of association or suggestion, which is a prominent factor in the reproductive phase, is a necessary element of rational thinking. In view of these and similar facts, the most that can be claimed for any one of the generic modes of intellect now under consideration is that it exhibits the special or peculiar action of one or more powers.

No phase comprises the whole of our mental experience at one time.

Secondly, it is not to be supposed or understood that each phase of activity necessarily constitutes the whole of our mental experience during the time of its continuance. By the term "phase," here, we mean simply the total collection of those activities which, arising from common conditions, accomplish, or tend to accomplish, a common end or work, and are therefore naturally regarded by us in one general view. We do not mean the total of our mental experience at any one time.

Activities belonging to different phases may co-exist, and a constant influence may be exerted from one phase upon another. Thus an object seen may give a new turn to some train of thought, or may furnish a link in some chain of reasoning; the observations of sense may be directed by the recollections of memory or the principles of science; and the playful work of fancy often interrupts, and sometimes is interrupted by, the earnest inquiries of philosophy. Yet the activities of the different phases may be distinguished even while mingling with, and affecting, each other. For the operations of the reproductive intellect are always subsequent in nature to those of perception, and presuppose them; while the operations of the discursive faculty are subsequent in nature to both the rest.

A mental operation may belong to two phases at once.

Thirdly, it may be difficult, sometimes, to say to which one of the three grand phases of intellect some complex activity, or series of activities, should be assigned; it is even conceivable that an operation may be of such a double character as to belong to two phases at once. An argumentative history or a philosophical poem might be claimed either for the reproductive or for the rational phase; for the one would combine memory, the other imagination, with reasoning.

Ordinarily, the character of any intellectual state or work may be determined by considering simply the principal end immediately subserved by it. Imagination involves skill and judgment in the analysis and synthesis of ideas, and might therefore be assigned to the discursive intellect. Yet this faculty, in its ordinary development and use, is properly classed as one mode of reproduction; for it aims *simply at the contemplation of its own creations*, and not at all at the attainment of truth and understanding. But there is an exercise of intellect very nearly akin to imagination, which, taking reason for its guide, and acting in the service of the knowledge of fact, forms conjectures, hypotheses, ideals, and illustrations; and this mode of thought, which has been called the *philosophical imagination*, is a subordinate part of the discursive faculty, its proper aim and effect being to discover and comprehend the truth.

Each phase should be regarded as including whatever belongs to it at any time. Perception involves inference, and reason intuition.

Finally, we must be careful not to limit our conception of any one of the grand phases of thought so as to exclude from it any element of activity which is ever properly included within it. The perceptive phase may be styled the *presentative*, because in it alone we find immediate or presentational cognitions, and because no perception takes place without at least having such a cognition as its most essential part. Yet it would be a mistake to suppose that perception — that is, the perceptive phase of thought — is confined to cognitions which in the strict or absolute sense are immediate. Every secondary, or *acquired*, sense-perception involves an inference. The immense majority of our external perceptions are of this kind. The very word "perception," though now applicable to cognitions which are immediate, probably signified originally a learning through the use of means.

In like manner the reproductive phase of thought includes more than the mere reproduction of thought. In all the higher employments of the fantasy the reproductive power simply furnishes materials, which then are elaborated by poetical skill and judgment.

The discursive phase, also, may be the subject of inadequate conception. The "discourse of reason," as it is called, is only the more prominent method, or manifestation, of that faculty whereby man seeks to perfect and extend his knowledge of things. There is also what has been called the "intuition of reason," from which the discourse of reason originates, and which may be conceived to take place without the latter. This intuition is simply that clear analytical perception of elements and relations of which brutes are incapable, unless in a very low degree, and the development of which gives to the human understanding its peculiar and penetrating power. It is with reference to these two modes of rational activity that the division of reason into *intuitive* and *discursive* may be best maintained. The penetrating analytical apprehension of the nature or composition of objects is a condition of the discursive processes of reason, and is the chief and the ultimate source of the distinctive character of the rational faculty; but this apprehension is mostly to be found and seen only in connection with those discursive processes — such as formal generalization, analysis, synthesis, and inference — which are discussed in the philosophy of logic. Moreover, language expresses the operations of reason only as they are discursive.

With reference, therefore, to its notable manifestation we may rightly style reason the discursive faculty; remembering at the same time that the *discursus mentis* is not the whole work of reason, but only its full and principal development. The same extension of meaning takes place when, in English, "the understanding" is used as equivalent to "the reason," and when, in Greek, ἡ διάνοια is used as equivalent to ὁ νοῦς; for ἡ διάνοια, "the discursive faculty," and "the understanding" are all interchangeable terms.

The grand phases of thought defined.

With the foregoing explanations such definitions as the following of the three grand phases of mental activity may prove sufficient. The perceptive phase is composed of perceptions which are either immediate, or which closely and invariably follow upon those which are immediate. It exists whenever there is immediacy of perception; and there is a sense according to which it includes immediate perceptions only. It excludes all formal inference, or such as deserves the name of reasoning. The reproductive phase comprises every form of the reproduction and elaboration of knowledge and thought which the purposes of contemplation, as distinguished from those of understanding and of rational conviction, call for. The discursive phase includes all those operations in which, for the ends of understanding and conviction, we use that power of intellectual penetration and comprehension which is called reason, and which especially manifests itself in the discursive or logical processes of mind.

The prominent feature of the first phase is the immediate cognition of things; of the second, the reproduction of ideas; of the third, that elaboration of thought in the practice of which we form clear and distinct conceptions of things, and reason consecutively concerning them.

The perceptive phase originative of all thought and primordial as to all conviction.

2. Let us now concentrate our attention upon the perceptive intellect. The most important doctrine to be taught concerning this faculty is that it furnishes man the materials out of which all his ideas are composed, and lays the foundations on which all his knowledge and convictions rest. More particularly, we say, first, that perception originates the conceptions of things perceived, while all other conceptions and constructions of thought are obtained by the analysis of presentational conceptions and the synthesis of their elements; and, secondly, we say that perception originates its own convictions, while other convictions are either actualistic inferences, which rest their truth entirely upon perceptions as their actualistic basis, or hypothetical inferences, whose whole value lies in the possibility of their attaining actualistic force by becoming connected with perceived fact. For here we exclude, or rather include, inferences of possibility and of probability, as these accompany or rest upon necessitudinal inferences, and are related in the same general way, though less directly, to presentational knowledge.

The originative and primordial character of perception is therefore twofold, and is related, first, to the ideas, and, secondly, to the beliefs, or convictions, of the mind. With regard to ideas it is not denied that we have many thoughts other than perceptions, and many, too, differing greatly in their style and structure from the conceptions obtained by cognition: it is only held that no element of conception can be found which has not first appeared as an element in perception; and that *the presentative faculty furnishes all the materials of thought*, the work of other faculties, so far as thought is concerned, being confined to reproduction and elaboration.

Locke quoted and commended.

The first philosopher who fully perceived the truth and importance of this doctrine was John Locke. For this reason Locke may justly divide with Descartes the honor of inaugurating modern metaphysical progress, and may even claim the greater share. While Descartes was first to break loose from the false scholastic methods of interpreting thought and belief, Locke was the first to indicate and adopt the true method. The first book of the "Essay on the Human Understanding" directly combats the doctrine of innate ideas; the second opens by giving the "original" whence all our ideas are derived. "Let us," says Locke, "suppose the mind to be, as we say, white paper, void of all characters, without any *ideas;* how comes it to be furnished? Whence comes it by that vast store which the busy and boundless fancy of man has painted on it, with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer, in one word, from *experience.* In that all our knowledge is founded, and from that it ultimately derives itself. Our observation, employed either about external sensible objects or about the internal operations of our minds, perceived and reflected on by ourselves, is that which supplies the understanding with the materials of thinking. . . . These two, I say, — *viz.*, external material things, as the objects of sensation; and the operations of our own minds, as the objects of reflection, — are to me the only originals whence all our ideas take their beginning. . . . The understanding seems to me not to have the least glimmering of any ideas which it doth not receive from one of these two."

Thus Locke taught that sensation and reflection, or what we now call sense-perception and consciousness, as the modes of immediate perception, furnish all the materials of thought.

In the subsequent books of the "Essay," the development of this doctrine is attended with considerable obscurity. This arises partly from an imperfect recognition and analysis of the operation of the secondary powers of mind, but chiefly from that unnatural enlargement of the conceptions of sense-perception and consciousness whereby they are made to include all of our presentative cognitions. This enlargement, in violating certain common combinations of thought and speech, renders the perplexity of the reader almost a matter of necessity; for men allow another class of perceptions, additional to the two which Locke mentions, though inseparably concomitant of them.

Ordinary language permits us to say that material bodies, with their qualities and operations, are perceived in the cognitions of sense; and that the soul, its powers, and its activities are the objects of consciousness. But we cannot properly speak of feeling, seeing, or hearing such things as spaces, times, or relations, nor are we properly conscious of our mental states as being causes or effects, or as having number, or difference, or similarity, or succession. Such language, if used, is secondary and improper. Therefore, while accepting Locke's doctrine, we think that clearness of statement calls for a threefold division of the perceptive phase of intellect.

The fact that concomitant perception acts only in connection with the other two modes of presentational thought does indeed excuse Locke's division and its general adoption by subsequent writers; yet, in metaphysical philosophy, it is often advantageous and even necessary to distinguish, and to consider separately, things which are inseparably united.

Perception is not the origin of our convictions in the same sense in which it is the origin of our conceptions.

3. The convictions of perception, in their relation to all our other convictions, are primordial. In other words, they are the beginnings of all knowledge and belief. This relation has not at all been so thoroughly considered as that of the *thoughts*, or *ideas*, of presentation, to our other thoughts, or ideas. We trace this neglect to the fact that the difference between thought and belief has been greatly overlooked and unconsciously belittled by philosophers; so much so that many, if not most, have treated belief as if it were merely either a clearer exercise of thought or a specific combination of ideas.

Were either of these opinions correct, we would naturally suppose the convictions of perception to be related to our other convictions simply in the same way that the conceptions of perception are related to our other conceptions; in other words, we would hold that all other than presentational convictions are formed from these latter merely by analysis and composition, — a doctrine which would not be true.

The want of any tangible distinction between thought and belief, in Locke's writings, necessarily affected them with ambiguity and left them open to serious misunderstanding. Such ambiguity is especially apparent when he says that experience is "*the original* [or origin] *of all knowledge*." For knowledge is *thought* considered, not simply in itself, but *as accompanied by certain and well-founded conviction;* and while it is true that experience furnishes all the ideal, or conceptual, elements of knowledge, it is not true that it furnishes all the convictional elements of it. The very nature of inferential knowledge is to project itself beyond the range of presentational cognition. Yet Locke certainly intended to teach that experience — that is, presentative cognition — is the origin of all belief as well as of all thought; and he taught this doctrine without apprehending its duplex nature, and without perceiving that a true account of the origin of our convictions must differ materially from a true account of the origin of our conceptions.

His teaching, however, as to the origin of our convictions is obscure rather than incorrect. In a very important sense, presentation is the origin of all knowledge and belief. Locke does not say that subsequent convictions are merely the reproduction and elaboration of those which are presentational; but only that "perception is the first step and degree towards knowledge, and the inlet of all the materials of it."

The difference between Locke and Leibnitz. The phrase "nisi ipse intellectus" discussed.

We cannot, therefore, agree with the great German contemporary and opponent of Locke, Gottfried Wilhelm Leibnitz, when he says: "In Locke there are some particulars not ill expounded; but upon the whole he has wandered far from the gate, and has not understood the nature of the intellect." On the contrary, the same cause of obscurity which affected Locke's doctrine equally affects the refutation of it attempted by Leibnitz in his "Nouveaux Essais." In these he teaches that many "*ideas and truths are innate*" to the mind. By this, he says, we are to understand, not that they have been in conscious possession from birth, nor yet that they have no need of experience as *an occasion* for their apprehension, but that perception is not at all the origin or source of them, and that they are produced by another and higher power.

This teaching of Leibnitz has been accepted by later philosophers, especially by many who claim for man a power of "intuition" or "common sense." But it is no necessary part of modern "intuitionalism;" and so far as it sets forth a source of ideas other than presentative perception, it is positively wrong. Locke's "Essay" is only negatively wrong in not distinctly recognizing, in certain phases of conviction, an element which is not derived from presentation.

A good view of this whole subject may be obtained from a consideration of that pithy statement in which Leibnitz expresses his dissent from Locke. In modification of the Aristotelian aphorism, "Nihil in intellectu quod non prius in sensu," Leibnitz adds, "nisi ipse intellectus." Here, in justice to both parties, the term "sense" must signify, not sensation, nor even sense-perception, but presentative cognition in general. This use of terms is similar to that according to which consciousness, as a perception connected with feeling, has been called man's internal or spiritual sense. Indeed, Locke speaks expressly of "external and internal sensation." The term "intellect," also, must here signify the mind in its higher, or rational, phase of activity. And as this intellect can contain only two kinds of things, conceptions and convictions, the statement that there is nothing in intellect which has not been previously in perception means that every constituent element of conception and of conviction is furnished by the presentative faculty. In opposition to which doctrine, and in the phrase "except intellect itself," we are taught that mind has a power of generating thought and conviction altogether different from the power of immediate cognition. Such, at any rate, is a fair statement of the view of Leibnitz as opposed to that of Locke.

So far as the origin of our thoughts or ideas is concerned, we prefer Locke to Leibnitz. At the same time the opinions of these illustrious men might be harmonized, and that, too, without any violent change in either opinion, if the following statements should be accepted as true: —

1. It seems clear that powers of thinking and believing are born with, and innate to, the human soul.

2. The faculties of reproduction, analysis, and composition exist in addition to the perceptive faculty.

3. Presentation furnishes the elements of all thought or conception, considered merely as thought and aside from any accompaniment of belief. The sameness of the reproduced elements, however, is not literal, but only such as we ascribe to a *repeated* activity.

4. The convictions, as well as the conceptions, of the presentational intellect may be recalled, analyzed, and combined.

5. We can and do immediately perceive that necessitudinal connection whereby individual facts may be related to each other as antecedent and consequent, which perception is not inference (both facts being presentatively perceived), yet forms that same construction of thought which inference afterwards employs.

6. This inference, or reasoning, as a power and mode of belief, is something wholly additional to presentational conviction, and is not a derivative or secondary form of the same thing.

7. But at the same time presentation not only furnishes the necessitudinal modes of thought which inference employs, but also is the only *ultimate ground* of *real* conviction; for an antecedent must in some way have presentational evidence for its existence, before any consequent of it can be really known to be.

No one of the principles now enumerated can be neglected, or denied, or confounded with another, without leading to a confused or one-sided statement of the truth. The importance and the correctness of them cannot be further shown at present, but will become apparent in connection with future discussions.

CHAPTER XXXI.

THE PERCEPTIVE, OR COGNITIVE, PHASE.

The objects of perception are: 1. Real; 2. Individual; 3. Complex. Descartes quoted and discussed. "Cogito, ergo sum."

1. LEAVING the subjective for the objective relations of the perceptive faculty, a threefold doctrine presents itself for consideration. In the first place, the object of perception is real; in the second, it is individual; and in the third, it is complex. The statement that the objects of our presentational cognitions are real is the equivalent of another statement more frequently discussed, — namely, that our immediate perceptions are reliable or trustworthy. It is plain that presentational thought, in its very nature, asserts the existence of its objects, and that this existence can be gainsaid only by denying the truth or soundness of this assertion.

Very few speculators have attempted that extreme of scepticism which questions the testimony of consciousness; and those who, like David Hume, have done so, have not been able to produce any real doubt, even in themselves, as to the fact of one's own life and being; yet they have succeeded to some extent in confusing, first themselves and then others, as to the method by which this fact may be philosophically proved. But many have theoretically questioned, and even denied, the testimony of the senses.

This form of scepticism found nourishment in the doctrine of Plato that truth is gained only by contemplating the abstract and the universal, and in that scholastic mode of philosophizing which employed deduction from general principles as the all-sufficient method of advancement in knowledge. Besides, the well-known facts that mistakes occasionally occur in connection with sense-cognition, and that dreams and hallucinations are attended with false belief, were cited against the reliability of external perception.

When René Descartes felt himself forced to discard old doctrines and methods, his difficulties with regard to the cognitions of sense led him to seek the foundations of certain knowledge in the perception of spiritual things. Confessing that he greatly doubted almost all things, he yet was sure that he doubted, and that he himself, the doubter, existed. In the first of his "Meditationes de Prima Philosophia," he shows, to his own satisfaction, that all things may be doubted save that we doubt, or rather that we think and have spiritual experience in general.

In his second meditation he claims to have found the ποῦ στῶ of Archimedes, — the fixed point on which to rest the lever of philosophic reasoning for the displacement of all false doctrines, and for the elevation of true conceptions into their rightful places. This was the certainty of the fact that he himself really doubted and thought. His words are: "Nonne ego ipse sum, qui jam dubito fere de omnibus, qui nonnihil tamen intelligo, qui hoc unum verum esse affirmo, nego cætera, cupio plura nosse, nolo decipi, multa vel invitus imaginor, multa etiam tamquam a sensibus venientia animadverto?" and he expresses this irresistible conviction of his own existence as a thinking being in the famous sentence, "Cogito, ergo sum."

By this formula we are to understand, not that one's existence is either a part or a consequence of one's thought, but only that the certain knowledge of one's thinking involves the knowledge of the existence both of the thought and of the thinker. Descartes expressly says: "Neque etiam qui dicit 'ego cogito, ergo sum sive existo,' existentiam ex cogitatione per syllogismum deducit, sed tanquam rem per se notam simplici mentis intuitu agnoscit" ("For he who says, 'I think, therefore I am,' does not infer existence syllogistically, but by simple intuition perceives a thing self-evident"). In other words, Descartes assumed, or posited, certain knowledge of our own inward life and being.

From this circumstance some have supposed that he held consciousness to be the primordial source of conviction. Such, however, is not a fair presentation of his doctrine; for he found the source of the reliability of our internal perceptions, not in the power of the simple and direct cognition of that to which the active life of the soul may be immediately related, but in that clearness and distinctness which he found particularly to characterize certain modes of thought. He does not say, "*Conscius* sum cogitandi, ergo sum," but only, "*Cogito*, ergo sum." Thus Descartes came very near hitting the truth, yet missed it altogether, and went off like a comet into the abyss of hypothetical speculation.

"In this first knowledge which I have acquired," says he, "nothing but the clear and distinct perception of that which I assert assured me of its truth; and this could not have so assured me if it were possible that anything which I should conceive with the same clearness and distinctness should be false. Hence it seems to me that I may adopt the general rule that all things that I conceive very clearly and distinctly are true." For the word *percipio*, in the sentence, "Videor pro regula generali posse statuere, *illud omne esse verum, quod valde clare et distincte percipio*," means any kind of clear apprehension.

Descartes, like Locke and Leibnitz after him, did not see the essential difference between thought and belief, and so was led to mistake clear and distinct conception for that irresistible and irrefragable conviction which is the special characteristic of knowledge. We may have clear and distinct conception of that which is false. This error of Descartes showed itself in the next step of his philosophy. In this he asserted the existence of God simply on the ground that the idea of God is natural to the soul. "Tota vis argumenti," he says, "in eo est, quod agnoscam fieri non posse ut existam talis naturæ qualis sum, nempe, ideam Dei in me habens, nisi re vera Deus etiam existeret." This reasoning, and much more of the same kind by the same author, is not satisfactory. At the present day Cartesianism has little value save as an illustration of the truth by way of contrast.

Descartes' reason for trusting his senses. The true reason given. Reid quoted.

We must not leave Descartes without mentioning his argument justifying reliance upon the perceptions of sense. It is this: From the innate knowledge of the Creator, which the soul possesses and develops, *we know that God loves truth and abhors deceit; therefore he cannot have given us a nature whose operation would be a continual deception.* This reasoning seems good, provided the existence of God and his moral attributes can be shown without any dependence on knowledge gained by the senses. This may be disputed; and for another reason, also, the argument is unsatisfactory. Even granting it to be well founded, it is a proving of that which needs no proof, and which is plainest when presented alone and in the light of its own self-evidence. The weakness of the human intellect is such that in the course of abstract speculations it may be enticed to forsake that solid ground of conviction presented in perception, and to seek for evidence in all sorts of argumentation; and then for a time even visible and tangible facts — or, at least, our remembrance of them — may be surrounded by the clouds of doubt and of confusion.

A more satisfactory way of defending the primary convictions of the mind is to exhibit them in their own self-evidence; and this is to be done by clearness of statement and of illustration. It may be shown also that any denial of the self-evident involves absurdity, which mode of proof, however, is often only a variation of that just mentioned, the absurdity being inherent in the very contradiction of the truth, and not arising from the conflict of this with some other truth of a different nature. And, finally, the unsoundness of objections or difficulties may be shown, according to the best of one's ability.

Self-evident truths are mostly presented in forms of thought which are general and secondary, and in which the full force of original conviction is somewhat abated. Strictly speaking, only those intuitions are self-evident in which truth and fact are first perceived by the mind; and *general forms of thought are styled intuitive and self-evident, only because they may immediately represent or symbolize our primary convictions.* On this account the truth of such generalized intuitions must be evinced by the employment of instances. In the case of presentational perceptions this is easily done. Let any one for a few minutes attend to his own experience; he will see that his belief in the reality of his inward life and of his immediate surroundings is something over which he has no control, something absolutely irresistible. Should he attempt for a time to reject the evidence of his consciousness and his senses, and to believe something contrary to it, — for example, that he is a motionless and insensible block of stone or ice, — he will immediately be convinced of the impossibility and absurdity of such a task.

The objections to the truthfulness of our presentational knowledge can be shown to be simply ingenious fallacies, and for the most part founded on exploded theories. But were they ever so subtile and unanswerable, they could not even for one moment affect our real belief in the existence of an external and of an internal world. As Reid says, "The statesman continues to plod, the soldier to fight, and the merchant to export and import, without being in the least moved by the demonstrations that have been offered of the non-existence of those things about which they are so seriously employed; and a man may as soon by reasoning pull the moon out of her orbit as destroy the belief of the objects of sense."

The individuality of the objects of perception proved.

2. The doctrine of the individuality of things perceived does not call for extended consideration; it follows directly from the more general truth that all real things are individuals. But we should notice that it is a double doctrine, and involves both a statement of simple fact and a statement of necessity. It is true both that all things perceived — that is, all that have been perceived — are individuals, and that all things perceived, including *those yet to be perceived, must be* individuals. Whichever phase of the doctrine we take, we can trace the origin of it to presentational thought. The first phase is simply a generalization from our immediate perceptions; while the second arises because, when we perceive objects to be individuals, we perceive also that this *is necessary in the case of those objects*, and that, too, simply by reason of their nature as real entities. Thereupon, because whatever is

true of the particular by reason of its generic character is true also of the general or universal, we infer and affirm that *all real entities whatever* must likewise be individuals.

The question of the complexity of things perceived stated by Hamilton and discussed. The question of the *primum cognitum* fourfold.

3. We shall now consider whether the objects of presentative thought are complex or not. Sir William Hamilton states this question clearly, though with special regard to external cognition, in the following language: "Whether, in perception, do we first obtain a general knowledge of the complex wholes presented to us by sense, and then, by analysis and limited attention, obtain a special knowledge of the several parts; or do we not first obtain a particular knowledge of the smallest parts to which sense is competent, and then, by synthesis, collect them into greater and greater wholes?" The subject thus presented may be treated as one branch of a wide inquiry formerly prosecuted under the head of the *primum cognitum*, or, as we might say, of "first cognitions." Cognitions may be first either in that capacity which is the most important characteristic of all perceptions, and with which we are now more immediately concerned, — that is, *as the origin of all knowledge;* or they may be first *as belonging to the commencement of human life;* or *as connected with the first formation of language;* or *as entertained by the mind at its entrance upon some methodical investigation.* We hold that knowledge which is first in any one of these modes is always more or less complex, and that the distinct cognition, either of elements or of minute parts, is gained afterwards by attention and analysis.

Our ordinary perceptions complex.

No one now contends that the inseparable metaphysical constituents of things are separately perceived in cognition. To this extent an initial complexity or synthesis is allowed to presentational thought, at least by all who recognize the existence of metaphysical parts. One's perception of a shining drop of dew might include the cognition of its body, size, shape, place, color, transparency, fluidity, and brilliancy. Though one or another of these attributes would probably affect the mind more sensibly than the rest, they yet might all be perceived at once, and a distinct notion of each of them would only be obtained afterwards.

Professor Dugald Stewart held a different doctrine from this. Influenced by the teaching of previous writers, that the soul, being unextended and indivisible, cannot have different simultaneous modifications, he maintained that the perception of the mind at any one time is confined to what he termed the *minimum visibile*, or what might be more adequately called the *minimum perceptibile;* and he ascribed the apparent instantaneousness of the perception of wholes to the rapidity of mental action. This view, together with the parent assumption that the soul is incapable of more than one modification at a time, has been rejected as unfounded and improbable. Consciousness testifies that wholes of considerable complication can be perceived by the mind without any process and in one simple exertion of energy. The different parts of the object, — of a lamp, or inkstand, or chair, or table, — together with the connecting relations of the parts, are apparently perceived as quickly and as simultaneously as the whole figure of a man is reflected from a mirror.

Were this statement in need of formal proof, no more ingenious argument could be desired than one which is employed by Sir William Hamilton. He calls attention to the fact that the face of a friend is much more easily recalled in its general outline than in its particular features. It is often found difficult to remember exactly the color of the hair or eyes, or the lines of the mouth or nose, of some perfectly well-known friend. But such a result could scarcely be expected were the parts of the face always first perceived in succession, and after that combined, as Stewart says, with the assistance of "the faculty of memory."

At the same time we must remark that in adult or developed perception the idea of the object is generally filled out from previous knowledge. When we speak of seeing a stone, or anything else which is hard, the idea of hardness is supplied by the mind from knowledge acquired through touch. Such perception is double; yet probably no more time intervenes between the commencement and the completion of it than that which must elapse between the reflections from a looking-glass of the nearer and of the more distant parts of an object.

The first perceptions of the infant in one sense more complex, in another less, than those of after life.

The character of the perceptions of a new-born infant must be chiefly a matter of analogical conjecture. In comparison with that developed character which they soon attain, they are doubtless wanting greatly, not in vividness, but in that distinction and separation of things which results from an exercise of the analytic power. Though it would be hazardous to say respecting any doctrine whatever that it has not been upheld by some philosopher, we have never yet heard of any one who maintained that children an hour, or a day, or even a week, old are given to attentive and discriminating thought. Probably their thinking is confused and indefinite, unless when it may be concerned with some bodily want or pain.

The thinking power of

> "The baby, new to earth and sky,"

may be supposed to be occupied simply with two comprehensive and ever-varying conceptions. All things other than the conscious spirit and its life probably appear to it as one complicated and fluctuating *non-ego*, surrounding the soul and affecting it on every hand; while at the same time the soul perceives itself as the diversely sentient and thinking *ego*. Plainly, this mode of thought would be more confused and complex than that of our ordinary perceptions. But we may conjecture it to be followed by a phase of mind in which attention is specially given to the cognitions of one sense at a time, — in which, for example, the infant considers simply the visible appearance of some toy, or of a hand or foot, to the exclusion of those qualities which are apprehended in connection with muscular and tactile sensations. The conceptions thus formed would, in one respect at least, be less complex than those of our daily life. But, finally, the child learns that the world around him, with its scenes and agencies, is not a mass of confused and intermingling parts, — that many material forms may easily be distinguished, and that objects definitely perceived by one sense can be identified with the objects of other senses. So, at last, hands and feet, fingers and toes, persons and things, become individually marked and known. At the same time the young spirit begins to discern different general modes in its own life; sensation, thought, fear, desire, occasionally succeed in attracting some slight attention. Then perception may be supposed to have assumed its normal character, and to be ready for whatever increase in quickness and power is to be obtained through future practice.

The state of thought at the first formation of language.

The cognition, or rather the knowledge, which conditions the first formation and use of language, is more advanced than that of presentative thought; as is that, also, the possession of which is prerequisite to formal scientific or philosophical investigation. These, however, are illustrative of the general complexity of our earlier modes of thinking, and may be noticed in the present connection. Hamilton unadvisedly, we think, regards the question of the *primum cognitum* as applicable only to the origin of language, and gives the following statement of it: "Does language originate in general appellatives or by proper names?"

Without following the course of his discussion, we shall present what seems a reasonable answer. First, it appears evident that a considerable degree of mental development is necessary to the first use of language. Long before children begin to speak they possess general notions, and are able to think by means of them. It is true that many of their ideas are particular. Their conceptions of the different members of the family to which they belong, of the different apartments of the house in which they live, and of the permanent objects within and about their home, are individual, or singular. But they have perceptions also of things which are continually changed and replaced by others of a similar character; and it is impossible that they should not form general ideas in connection with such perceptions. Not to speak of the modes of their own life which repeat themselves in rapid succession, classes of things, such as cups, saucers, plates, knives, forks, spoons, tables, chairs, and other articles of daily use, together with general notions, such as bread, butter, milk, water, wood, coal, which represent things of daily consumption, must find a place among their thoughts. It is unlikely, therefore, that human language at any stage of its development ever consisted wholly of proper names, or even that all words are first employed and understood by children as applicable only to singular objects. On the contrary, when children ask for a spoon or cup, a piece of bread or a glass of water, as they do so soon as they can talk at all, they are using common nouns in their appropriate significance.

At the same time it is true that the very first words used by children are either proper names or terms which they take for such, and which are not as yet understood by them to have a common applicability. Locke, and Aristotle before him, are only two out of a long line of philosophers who have remarked that the little ones at first use appellatives, such as papa, mamma, nurse, aunt, in just the same way as they do proper names, such as Edward or Eliza, not knowing that the former have a general meaning, while the latter are individual properties. So, also, often in very early life, the cow, the horse, and the dog are names which represent individual animals only. The same philosophers remark that the action of the mind in forming general notions is instanced by the readiness with which terms are transferred from a singular to a common signification. A child who has learned to say papa and mamma will call every man he sees a papa and every woman a mamma. Very soon, however, such mistakes are corrected, and words are employed properly.

But the law of thought, that the complex and particular precedes the abstract and general, affects the language of adults no less than that of children. Numberless instances might be adduced in which the individual fact has lent its own proper name for a general service; and many are of special interest. The verb "meander" was originally a noun designating a winding stream in Asia Minor. Buncombe, which is the name of a county in North Carolina, came to signify the making of speeches for the sake of distant popular effect, by reason of the remark of a rough old mountaineer, Felix Walker, who once represented that county in the State Legislature. His fellow-members were tired of the old man's rustic oratory. Some shouted, "Question, question;" others begged him to desist. But he could not be stopped; "for," said he, "I am bound to make a speech for Buncombe." Jack Ketch, which is a common English expression for hangman, was at first the proper name of a man who busily discharged the duties of that office during the "bloody assizes" of Lord Jeffreys, in the reign of James the Second. The term "Czar," or "Kaiser," is an enduring monument of that supreme authority which Julius Cæsar once obtained for himself over the ancient world; while "Emperor," which is from the Latin "Imperator," and is the English equivalent of "Czar," also dates its origin from the times of Cæsar; for, being unwilling to offend Roman ears by the designation "king," he contented himself with this military title.

The doctrine of the priority of the complex in the history of mental development is also supported by the fact that our more abstract nouns are, for the most part, of late appearance, as compared with those more concrete. Such words as "animal," "quadruped," "mammal," which present certain aspects of that natural genus to which horses, cows, dogs, cats, and other like species belong, are of later use than these specific names. Grammarians, also, note that modern languages are analytic, while the ancient are synthetic, in modes of expression, — which circumstance indicates a kind of unconscious public progress in discriminating and abstractive conception.

Science starts from a consideration of the complex.

After all that has been said, we need not dwell on the doctrine that the knowledge with which any science begins is more complex than that afterwards attained. This is simply to say that the analytic is the only reliable method in scientific investigation. For if this be granted, it is plain that the knowledge of attentive observation is that with which philosophizing commences, and that this knowledge is more complex than the general conceptions and principles which may be evolved from it by means of right thinking. Few now hold the contrary doctrine, though too many yet conform their practice to antiquated methods. Very few deny that our knowledge of the general is originally derived from our perception of the individual. And no fact is better attested by the past history of philosophy than that those who will construct science, whether physical or mental, from abstract principles unsupported by induction or generalization from particulars, are devoting their lives to the accomplishment of failures.

CHAPTER XXXII.

CONSCIOUSNESS.

The doctrine of consciousness simpler than that of sense-perception, and logically antecedent

1. OF the three subordinate modes of the presentative intellect, that immediately conditioned on sensation, and therefore called sense-perception, is more noticeable than the rest, involves a greater number of important questions, and has received more attention from philosophers. For that appearance of simplicity which characterizes our external perceptions, notwithstanding the real complexity and subtilty of most of them, has beguiled many into a task which they have found easier to begin than to finish. The problem of sense-perception has been the *quæstio vexata* of twenty centuries, and has reached a satisfactory solution only during the last one hundred years.

Before attempting the discussion of it, let us consider the power of consciousness. For the action of this power is simpler than that of external perception, and also conditions it; because material agents are never seen save in connection with the psychical changes which they produce in us.

The history of the term "consciousness." The term "reflection" as employed by Locke.

The term "consciousness" signifies, literally, "an accompanying knowledge." In this radical meaning it is synonymous with "conscience," or "conscientia," which term, in mediæval philosophy, was the ordinary expression for what we now call consciousness. The scholastic definition of "conscientia" was "perceptio qua mens de presenti suo statu admonetur." But our activities may be perceived either simply and as to their own essential nature; or as being right or wrong, virtuous or vicious or indifferent, by reason of their relation to the moral law. Accordingly, two kinds of knowledge may be said immediately to accompany the life of a rational spirit. Thus the term "conscientia," as expressing equally either of these kinds of knowledge, was affected with an ambiguity. This was avoided, in the English language, by forming the word "consciousness" and by surrendering the word "conscience" to a use purely ethical. The ambiguity had been previously avoided by Latin writers, who employed the term "reflexio" for the notice taken by the mind of itself and its life; and so when Locke wrote, a choice of terms was presented to him. Although Locke speaks of consciousness, and even gives the definition, "Consciousness is the perception of what passes in a man's own mind," he prefers reflection as the formal name of the power.

Two reasons may have influenced this choice, perhaps unconsciously. In the first place, reflection, which signifies the bending back of the mind, naturally suggests an attentive or observant consciousness, by which only we can form clear and satisfactory ideas of what passes within. It is to such a consciousness that Locke constantly appeals, though he does not distinguish it from consciousness in general. And, secondly, the term "reflection" admits an easy though unscientific expansion of its meaning, so as to include and account for the cognition of certain things — such as duration and succession and number — which are not, properly speaking, perceived by consciousness, yet are perceived in immediate connection with the proper objects of consciousness. Locke, for example, distinctly says that duration has "its idea from reflection on the train of our ideas."

The use of the term "reflection" by this great man illustrates his chief defect, which is a want of precision and exactitude both of thought and of expression. But, for all that, the "Essay on the Human Understanding" is a book blazing from beginning to end with independent and powerful thinking. "The other foundation," says Locke, "from which experience furnisheth the understanding with ideas, is the perception of the operations of our own mind within us, as it is employed about the ideas it has got; which operations, when the soul comes to reflect on and consider, do furnish the understanding with another set of ideas which could not be had from things without; and such are perception, thinking, doubting, believing, reasoning, knowing, willing, and all the different actings of our own minds; which we, being conscious of, and observing in ourselves, do from these receive into our understanding as distinct ideas, as we do from bodies affecting our senses. This source of ideas every man has wholly in himself; and though it be not sense, as having nothing to do with external objects, yet it is very like it, and might properly enough be called *internal sense.*"

Consciousness defined. Includes perception of the *ego* and its powers. Hume quoted.

2. Both before and since the publication of the "Essay," philosophers have defined consciousness as the power of the soul to perceive its own states and operations. These, undoubtedly, are the objects concerning which consciousness is principally exercised. But it seems proper to say that we are conscious of the *ego*, or self, or spiritual substance, and of its powers, as well as of the operation of the powers of the *ego*. In all acts of consciousness, and in these acts only, we perceive, as one complex object, the *ego*, its *power*, and its *activity;* which cognition, moreover, is

all truly concomitant of our thought and experience as related to other objects. President Porter says rightly, "We are directly conscious of the *ego* itself;" to which we take the liberty of adding, "and of its powers also."

This doctrine, that the soul is immediately cognizant of itself and its powers, would, we have no doubt, have received the approval of Locke; yet it was never directly taught by him. This omission left opportunity for subsequent writers, who accepted "sensation and reflection" as the "original of all knowledge," to question whether any such things as the soul and its powers are ever perceived to be. Hume, in his usual pleasant way, says: "For my part, when I enter most intimately into what I call myself, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch myself at any time without a perception, and never can observe anything but the perception. . . . If any one, upon serious and unprejudiced reflection, thinks he has a different notion of himself, I must confess I can no longer reason with him. . . . He may perhaps perceive something simple and continued, which he calls himself, though I am certain there is no such principle in me." To the same effect is the assertion of Stuart Mill: "My mind is but a series of feelings." It will be noticed that *these statements are deductions from an exclusive construction of the doctrine of consciousness*, — from the view that consciousness perceives only the *operations* of the *ego*.

The best mode of dealing with such heresies is to confront them with the common sense of men, by which they are flatly contradicted, the ground of the contradiction being every man's own immediate cognition of himself. True, we never "catch ourselves at any time without some perception or other." But this does not show that no *ego* exists and is known, but only that it is never seen save as in activity.

The conception of the *self* distinguished from that of the *ego*.

We allow that the conception of *self*, as distinguished from the conception of the *ego*, — in other words, the conception of the *ego*, not simply as existing at the present moment and with this present activity, but as an enduring entity with permanent characteristics, — requires something more than the exercise of mere consciousness. It includes the identification and the comparison of the *ego* and its present state with itself and its previous states, which acts involve memory. Indeed, the identification of the *ego* as now existing with itself as existing formerly, is one of the elements which distinguish remembrance from every other exercise of the intellect. At the same time it is clear that if the *ego* of consciousness be admitted, the *self* of memory and of anticipation cannot long be rejected.

Let us note, also, that the *ego* and the *self* may be conceived of abstractly and aside from the thought of any particular modifications. The notions of them expressed in language are not only formed in this way, but have also a general character. *Ego* and *self* and the other personal pronouns, though not ordinarily used to express general notions, are yet terms which have a common applicability, and whose singularity depends wholly on their individuality of application. But the *ego*, of which one is conscious, is always perceived, not merely as an individual, but also as affected with the modifications and relations of the present moment.

Two secondary significations of consciousness.

3. The conception of consciousness which we have been considering hitherto, may be regarded as the primary and proper meaning of the term. From this two secondary senses are to be distinguished. Sometimes the word, according to its original force, signifies a cognition accompanying some other cognition which more directly occupies the mind. A student, while engaged with his books, might be said to be conscious of the presence of some one in his room; an orator, while speaking, might be said to be conscious of his power over some assembly. A criminal may be conscious of his guilt, a martyr of his innocence, a millionnaire of his wealth, a beautiful woman of her attractions. Such language, however, belongs chiefly to common life.

On the other hand, there is a peculiar metonymical sense of the term "consciousness," which is employed chiefly by philosophers, according to which it signifies, not the act or power of self-cognition, but all those internal affections and operations, taken collectively, of which the soul is conscious. In this sense one's consciousness includes all his thoughts without exception; it is the entire life of the soul considered as the object of one's experience or immediate cognition. Hence Hamilton's definition is inadequate, in saying, "Consciousness is a comprehensive term for the complement of our cognitive energies." This statement could be accepted only in case no other psychical phenomena than those of cognition could be internally perceived; or provided, at least, that usage had restricted the term "consciousness" to less than its natural application. Neither supposition is true.

We must allow, however, that, according to the *usus loquendi*, "the contents of one's consciousness" comprise only whatever is part of the active life of the soul. The soul itself and its powers are not included, though, as we have seen, we may be said to be conscious of them also. The cause seems to be twofold: in the first place, the ordinary attention of consciousness is directed to the changing phenomena, and not to the permanent factors from which they originate; and secondly, a name is needed for these phenomena as a collective whole, whereas there is little or no need for a collective name to cover the soul, its powers, and its operations.

Consciousness a special mental faculty. Sir Wm. Hamilton quoted.

4. The point of principal difficulty in the doctrine of consciousness is connected somewhat with the ambiguity with which the name of this faculty is affected by reason of its diverse meanings. It may be presented thus: Consciousness is a power of mind which has a distinct and special function of its own. This proposition has been strenuously controverted by Sir William Hamilton, and by other eminent writers both in Europe and America. In the eleventh lecture of his "Metaphysics," Hamilton says: "Consciousness *is not to be viewed as anything different from these modifications* [of the *ego*] *themselves*, but is, in fact, the general condition of their existence, or of their existence within the sphere of intelligence."

This teaching of Sir William must be condemned as inaccurate. He does not say that the word "consciousness" is used in two senses, in one of which it signifies a power of internal cognition, and in the other those experiences, taken collectively, of which we are internally cognizant; but *he identifies our internal perceptions with the activities perceived.* We allow that no being can think or know, feel or desire, without being conscious of these things, but hold, at the same time, that consciousness is an element of psychical life additional to, and distinguishable from, the things of which we are conscious; for our souls are capable of a complex of contemporaneous activities. We can even be conscious of being conscious; because this twofold act of self-knowledge merely adds one more element to the complex already experienced.

In one case only, the exercise of consciousness may be asserted to include its object. When we are conscious of any particular idea, — for example, the idea of the moon, — the knowledge that we have this conception necessarily repeats and includes the conception itself; for we know not merely that we are thinking, but that we are thinking of the moon. We cannot think of any thought without therein thinking that thought. But to be conscious of a sensation or a desire, of a volition or an action, or of the confidence of belief or conviction, does not include these things, but only the thought or conception of them, accompanied, of course, with a recognition of their reality.

After Sir William has identified consciousness with those mental modifications which are the objects of it, *we need not be surprised at his teaching that we can be conscious of external objects.* For if it is the same thing to see a book or an inkstand and to be conscious of seeing it, then certainly we are conscious of the book or the inkstand. But it is a philosophical weakness to identify things simply because they are inseparably connected; and it is a palpable contradiction to say that a concomitant cognition is the same as the experiences which it accompanies. Paradoxes of this kind, even though presented by distinguished men, should not be accepted by us as expressing wisdom till we have fully satisfied ourselves that they are not absurdities.

Consciousness a patent fact. Its specific operation evidenced by language.

When sophistical difficulties are dismissed, how plain the fact remains that consciousness, though not a separately operative, is yet a distinct and peculiar, mental power! If modes of immediate cognition be contrasted according to the differences of things perceived, in their relation to the percipient *ego*, then this faculty, which gives the knowledge of psychical things, must be distinguished from every other. If we must recognize a faculty of external cognition, which nevertheless is conditioned by the perception of things internal, we must recognize also a faculty of internal cognition, which nevertheless is conditioned by the perception of things external. How manifestly, too, conceptions originate from consciousness which are distinct from all others, and which could not come from any other source! How could such ideas arise as seeing, thinking, believing, doubting, reasoning, knowing, or such as enjoying, suffering, desiring, fearing, resolving, doing, if we had not a power of perceiving these things? All these notions are generalizations from the particular cognitions of consciousness.

The special action of this power, even in the case of our thoughts, is witnessed by such terms as "notion," "imagination," "idea," "thought," "conception," which apply to *classes of mental states and operations.* The use of such terms must have been preceded by the individual perception of such states and operations; and the conceptions which they express must have been obtained by rejecting, or eliminating, from individual conceptions of ideas, the ideas themselves. The fact that we form abstract notions of mental activities indicates that the cognition of internal things is very naturally regarded as a distinct function, even while it combines with other functions in the same exercise of energy. In this case, as in many others, common thought is able to separate the inseparable, and can reject as absurd the language of Hamilton when he declares himself conscious of his table and his inkstand.

The trustworthiness of consciousness. Mill quoted. His doctrine of the *ego* discussed.

5. The trustworthiness of the cognitions of consciousness is a doctrine on which all philosophers have always been agreed. We think it is the only one which has never been disputed. This unanimity should be a matter of congratulation among the thoughtful brotherhood, though we suppose they would hardly claim that they have each other to thank for it. Beyond question, if there were any possibility of rejecting the authority of consciousness, some illustrious school of wise men would have done this long ago. What Varro says is true: "Nihil tam absurde dici potest, quod non dicatur ab aliquo philosophorum." No one, even of that considerable class whose originality lies in paradoxical opposition to the common sense of men, has dared to broach a doctrine so untenable as the denial of the testimony of his own consciousness would be. When a man is suffering, how vain it is to tell him that there is no pain, that there is no such thing as pain! The stoic may maintain that pain, at least for the virtuous, is not an evil, but the means of great and lasting good; but who that has had the toothache can deny the reality of pain? When we survey a landscape, when we study a lesson, when we remember an absent friend, when we are pleased with goodness or indignant at wrong-doing, when we have earnest desires or make high resolves or put forth strong exertions, when we feel exhausted with labor or are triumphant with success, how certain we are of the reality of these things as parts of the soul's experience!

Even that sceptical school who destroy our conceptions of knowledge and belief by identifying these things with the reproduction of sensations and the association of ideas, admit that the revelations of consciousness are of immediate and absolute authority. Mr. John Stuart Mill, the associationalist Aristotle, in his "Examination" of Sir William Hamilton's philosophy, condemns, as needless and unwise, any attempt to prove the reliability of consciousness. "All the world," he says, "admits that it is impossible to doubt a fact of internal consciousness. To feel and not to know that we feel, is an impossibility. But Sir William Hamilton is not satisfied to let this truth rest on its own evidence; he wants a demonstration of it. As if it were not sufficiently proved by consciousness itself, he attempts to prove it by a *reductio ad absurdum.*"

In view of statements such as these — which are made by associationalists — we naturally inquire how these writers can reject that teaching of consciousness which asserts the existence of the *ego* and its powers. Any ordinary unsophisticated man will say that he is just as certain of the existence of himself and of his faculties of thought, feeling, and action, as he is regarding the operation of these faculties; nor will he allow that his perception of himself, as a living being, is any less immediate and reliable than his perception of his spiritual life. He will even affirm that he desires no greater certainty respecting any fact than that which he experiences every moment respecting the fact of his own existence. Those who admit the "self-evidence" of consciousness can defend their denial of the *ego* only in one way: they must claim that no such thing as an *ego* is ever perceived.

To do this directly would be a declaration of open war upon the common sense and the common language of mankind. Therefore they permit us to speak of ourselves and our powers, and allow that such language sets forth reality. But they assert that the reality is different from what most of us take it to be. The problem, however, of explaining away the *ego* has not been found easy. Mr. Mill's explanation consists of two parts, the one of which supplements the other.

Proceeding on the hypothesis that we know only that of which we are conscious, and that we are conscious only of feelings, and having defined the mind as "a thread of consciousness," or "a series of feelings," he first encounters the fact that "the thread of consciousness" consists "in part of memories and expectations. . . . These," he says, "include the belief that I myself formerly had, or that I myself and no other shall hereafter have, the sensations remembered or expected. The fact believed is that the sensations did actually form, or will hereafter form, part of the self-same series of states, or threads of consciousness, of which the remembrance or the expectation of those sensations is the part now present. If, therefore, we speak of the mind as a series of feelings, we are obliged to complete the statement by calling it *a series of feelings which is aware of itself as past and future*; and we are reduced to the alternative of believing that the mind, or *ego*, is something different from any series of feelings or possibilities of them, or of accepting the paradox that something which, *ex hypothesi*, is but a series of feelings can be aware of itself as a series."

This reasoning is correct. It is true that the "fact" of the continued existence of "the self-same series of states," in which the experience of the past is united with that of the present and that of the future, can be known only through a *recollection* of the past, combined with a *consciousness* of the present, and an exercise of *judgment* which anticipates things to come. Here, therefore, three fundamental grounds of belief — *consciousness*, *memory*, and *judgment* — are assumed. What one of these can be explained as merely the reproduction of sensations, or the association of ideas? We think that associationalists have no right to appeal to the testimony of such powers. Nevertheless, accepting the assumption as a statement of truth, the syllogism is perfect. The mind, which is but a series of feelings, is not only conscious of its present feelings, but also remembers its past feelings, and expects others in the future. Therefore the mind is a series of feelings which is aware of itself as past and future.

This nonsense is termed by Mr. Mill "that final inexplicability at which we inevitably arrive when we reach ultimate facts." An ultimate fact may be inexplicable; it is not absurd. We do not wonder that Mr. Mill styles his doctrine a paradox. Who ever thought himself to be a series of any kind? What mind was ever aware of itself as being a passing procession, or as being anything else than an enduring unit? It is strange that the noble intellect, which so clearly apprehended the absurdity, could not reject the hypothesis from which it springs, and accept the alternative that "the *ego* is something different from any series of feelings or possibilities of them," — that the soul is something different from its states, though it is not to be seen save in connection with them. How wonderfully able thinkers, like Hume and Mill, can be deluded when once they have been led to adopt defective principles! Theoretical disbelief in the *ego* is a direct result of the fundamental error that we have immediate cognition of phenomenal changes only. These gentlemen deny themselves to be conscious of their own existence, because that would be a surrender of their philosophy.

The *ego* neither a series of feelings nor a permanent possibility of feeling.

The other part of Mr. Mill's doctrine regarding the *ego* is an explanation of the belief that the soul exists during the intermissions of actual consciousness, and is supplementary to the definition that mind "is but a series of feelings." In recognizing the necessity for a second statement, Mr. Mill assumes that one's unavoidable belief in his own existence is sufficient evidence of some fact to be acounted for; thus he admits the exercise of a power of judgment by which we believe in the existence of something which continues to exist as well when we are not conscious as when we are. Associationalism cannot even plausibly account for any such belief as this; indeed, nothing more exhibits the weakness of this system than the necessity, constantly encountered by its advocates, of assuming or admitting principles which have no proper place within their creed. This, however, is not the ground of our objection to the reasoning of Mr. Mill.

"The belief I entertain," he says, "that my mind exists when it is not feeling, nor thinking, nor conscious of its own existence, resolves itself into a belief of a permanent possibility of these states. If I think of myself as in a dreamless sleep or in the sleep of death, and believe that I — or, in other words, my mind — is or will be existing through these states, though not in conscious feeling, the most scrupulous examination of my belief will not detect in it any fact actually believed, except that my capability of feeling is not in that interval permanently destroyed, and is suspended only because it does not meet with the combination of outward circumstances which would call it into action; the moment it did meet with that combination, it would revive, and it remains therefore a permanent possibility." In this statement we are taught that mind exists, during intervals of unconsciousness, as a suspended capability of feeling, and that it is at all times a possibility of feeling, a permanent possibility. The word "capability," which Mr. Mill uses, properly signifies a kind of power, and might be regarded as exhibiting another indirect admission of truth; passing that over, let us consider Mr. Mill's intentional teaching.

Our first objection to it is that it *denies the fact which it professes to* *explain.* We are ignorant of any conception of possibility that associationalism can form; but we know what possibility is, and what it implies. In particular, we know that when we speak of the possibility of an entity which does not, yet may, exist, we are speaking of the consistency of the supposed existence of that entity with given fact, whether negative or positive; and that the entity, its existence, and its possibility, are merely hypothetical and ideal objects which do not exist at all. To make our continued existence the mere possibility of that which does not exist, is to deny that continued existence altogether. Such a possibility in itself is nothing at all.

Our second objection to Mr. Mill's statement is that it *really involves the fact which it is intended to disprove.* It is impossible to assert a real possibility without admitting the condition, or conditions, on which it depends. Let us remember that the possibility of a non-existent entity may be either hypothetical or real. *The former of these is an imaginary possibility, and is asserted simply on the supposition of conditions which are known not to exist.* A fire would be hypothetically possible, but really impossible, on the supposition of the possession of fuel which yet cannot be procured. This possibility is entirely removed from reality; to make our continued existence the possibility of something, the conditions of which are only supposed to be, would simply emphasize the denial of our existence. But, on the other hand, if our continued existence be a real possibility (which is the best conjecture we can make as to the meaning of Mr. Mill), then it is plain that something must really exist as a foundation for this possibility. *For that reality which is frequently ascribed to a possibility is metonymical, and sets forth only the reality of that on which the possibility depends.* And now what else can be the condition of a permanent possibility of feeling than the continued existence of one's self and one's powers?

Mill's conception of the *ego*, therefore, is doubly self-contradictory. First, it is self-contradictory in identifying reality with possibility,—the confessed reality of the *ego* with the mere possibility of a non-existent experience; secondly, it is self-contradictory in asserting a self-sustained possibility. For—we repeat it—a possibility has no reality of its own, and exists only in the existence of its own proper conditions. Beyond question there is within us a permanent possibility of psychical experience; but this possibility exists, and can exist, only in the existence of the powers of the soul.

Error traced to a strict construction of Locke's doctrines, and to his definition of substance.

The radical errors of associationalism, including the denial of the *ego*, originated, historically, from the influence of Locke's doctrines upon a certain class of his disciples. The fundamental conceptions and principles of Locke are marred by great want of definiteness, and should be regarded, not as statements whose perfection precludes correction or addition, but as the first rude beginnings of a great philosophy. That class of disciples to which we have referred, have construed Locke's doctrine as to the primary sources of our knowledge very strictly; and then, with much logical skill but with little philosophical penetration, they have maintained that sensations and ideas (reproduced sensations) are the only objects whose existence can be perceived. This extremity of delusion is not to be met with in

Locke himself, whose belief in respect to the objects of our cognition coincided with that of men in general; yet the incidental imperfections of his philosophy wonderfully facilitated the progress of error. His constant mention of ideas, as if they alone were the immediate objects of knowledge, threw great obscurity over the doctrine of perception; his account of personal identity is unsatisfactory; above all, his definition of substance, in which the metaphysical and the logical substance are confounded, includes a falsity which many, if not most, subsequent philosophers have received without question. Even Reid and Hamilton accepted Locke's incognizable substratum; we think that President McCosh is the first author by whom it has been expressly rejected.

Locke defines substance, "the supposed but unknown support of those qualities which we find existing." In truth, *substance is not a thing supposed or unknown, though it is a thing abstractly conceived of, and difficult of definition.* For certainly we know two kinds of substances, — spirit and matter; and therefore the knowledge of substances exists in one's mind whether he be able or whether he be unable to analyze and define it. Locke's definition gave an admirable opportunity for his keen-witted disciples to reject at once the definition and the thing. Why should any one without some good reason believe in a supposition? And how can we know that any given thing *is*, without, in that very knowledge, knowing *what* it is?

The chief difficulty connected with the definition of substance — that is, of metaphysical or "real" substance — lies in the extreme simplicity of its nature. Substance is a thing absolutely simple; therefore, like space, time, power, or change, it is incapable of analytical definition. Such things, however, can and should be defined by mentioning one or more of their relational properties. For the present it may suffice to describe substance as that kind of entity by which alone power, whether active or passive, can be possessed and exercised. And the *ego*, or soul, may be described as a substance endowed with those peculiar powers which we call psychical.

CHAPTER XXXIII.

SENSE-PERCEPTION.

1. EVERY science sets out with the recognition of alleged fact. This is the case with the philosophy of sense-perception. Men generally hold that they perceive, and that, too, as things different from themselves, material objects, together with the operations, qualities, and relations of these objects. Let us discuss the nature of this perception; let us inquire how far it may be a reliable source of knowledge; and let us seek for satisfactory conceptions of the objects which it reveals.

In every case in which the views of philosophers have differed from those of men in general, in regard to the reliability of cognition by the senses and the reality of the material universe, this difference may be traced to the various explanations of sensuous cognition which different thinkers have adopted. Such being the case, a review of theories concerning the process of external perception will be serviceable. This will bring to light the causes of mistaken judgment, both as to the topic immediately considered and as to others connected with it; and will qualify us to condemn unfounded or unnatural hypotheses, and to accept those that are satisfactory. No department of philosophy shows a more gradual advancement than the doctrine of sense-perception; none exhibits more strikingly how truth has often been attained at last only by the slow and difficult elimination of error.

The early Greek philosophers, 550–450 B.C.; Plato, 429–348 B.C.; Aristotle, 385–322 B.C.

The earliest theorizers, as was natural, formed conceptions of the soul more or less materialistic; they fashioned their notions of perception according to the analogy of some operation of matter. Diogenes of Apollonia defined spirit as a highly refined air or vapor, and perception as a vibration produced in this by the impact of outer things on the organs of the body, which the air pervades. Heraclitus said that the soul was fire, or caloric, and that its cognitions were movements corresponding to the motions of a similar external element which is the living principle of the universe. Possibly neither of these sages would have claimed that his language was strictly literal, but only that it was the best he could find to express his thoughts.

Empedocles held that "like can be known only by its like," and that images of things (*simulacra rerum*) must reach the mind from the object through the avenues of sense. These likenesses he called *ἀποῤῥοαί*, or effluxes.

Democritus, who taught that the soul differs from the body by being composed of finer particles, and that it is, as it were, a finer body enclosed in the visible one, agreed with Empedocles in the doctrine of the *simulacra*. These also are the appearances mentioned by Lucretius, —

> "Quæ, quasi membranæ summo de cortice rerum
> Dereptæ, volitant ultro citroque per auras."

The view of Democritus, that "all the senses are modes of touch," figuratively expresses a fundamental principle in philosophy, — namely, that the soul immediately perceives external things only so far as they may come into immediate contact with the sensorium, the perception of the distant being inferential. The effluxes of Empedocles are evidently devices to bring the soul into contact with something which, being immediately known, may reveal the prototype from which it comes.

Plato, rejecting external effluxes and *simulacra*, inculcated that sense-perception, or αἴσθησις, results from the interaction of the material object and the sentient soul. Hence he held that it varies with this joint activity; the perceptions of the same object by different beings are not necessarily alike, nor need the perceptions of the same object by the same being be always alike. Therefore sense-perception, as compared with rational knowledge (ἡ ἐπιστήμη), is inferior and untrustworthy. Moreover, in the Platonist doctrine, the object immediately perceived is an immaterial εἴδωλον, or image, formed by the action of the soul under the excitement of impressions from without. This εἴδωλον, with reference to its part in perception, was called the gnostic reason (λόγος γνωστικός), — that is, the reason, or ground, of knowing.

Aristotle, with a more penetrating genius than that of Plato, considered the individual, which is the object of the cognitions of sense, to be that which alone has actual existence, and in which alone the general conceptions of the intellect are realized. He did not condemn our first perceptions, as Plato did. At the same time he did not, like Locke, recognize their supreme authority as the sole origin of knowledge. Nor did he see that *perception, being an act wholly intellectual, and by no means a variable compound of thought and sensation, differs in different cases only because of its own invariable nature, — only because the object immediately perceived is no longer the same.* Aristotle makes too great a distinction between the ψυχή, or sentient and percipient soul, and the νοῦς, or thinking mind, and therefore, by implication, between the αἰσθητόν, or object of sense-perception, and the εἶδος, or form, which is the object of true knowledge. The latter is contained in the former, and is invariable; but the former, so far as it does not contain the latter, is a joint product of the sensation of the soul and of the sense-affecting motions of the external object. In short, the Stagirite did not recognize that the intellectual character of sense-perception is radically the same with that of the rational faculty, — nay, that its revelations are not less, but more, reliable than those of the elaborative intellect. The truth is that neither sense-affecting objects, nor the sensations which they produce, have any part in the production of perception, but only in the excitation of it. Perception is wholly a cognition from within.

Sense-perception (αἴσθησις) is defined by Aristotle as "the power which receives the sensible forms of things without the matter, as the wax receives the likeness of the signet-ring without its iron or gold" (τὸ δεκτικὸν τῶν αἰσθητῶν εἰδῶν ἄνευ τῆς ὕλης); in which statement sensible forms seem to signify *impressions corresponding to the whole individual nature of things*, but which yet are of a radically different character from the things themselves.

The scholastics, A.D. 1000-1500; William of Occam, died 1347; Descartes, 1596-1650; Locke, 1632-1704.

2. The schoolmen gave the name "species" to the images of Plato and the sensible forms of Aristotle; and because they considered these mental representations to result from the effort, or "intention," of the soul in the direction of the objects of sense, they called them *species intentionales*. With them these species were of three kinds, — *species sensibiles*, of which each sense furnished its own in respect to any observed object; *species sensatæ*, which were treasured up and employed by memory and fantasy; and *species intelligibiles*, which are the general notions of the intellect applicable to things perceived. The species of the fantasy were derived from those of sense; but different opinions prevailed as to the origin of intelligible species. Some derived them from the species of the fantasy; others held them to be innate to the mind, which brought them into use as occasion required. Moreover, while most made sensible species the internal products of a mental power, some gave them an existence external to the mind, and even a capability of flying, in a continuous and rapid succession, through space. Most mediæval thinkers, also, assumed some sort of resemblance between the species and the object perceived, — a doctrine which very naturally finds a place in every theory of representative perception.

But William of Occam, the great nominalist, who rejected the universals of rational thought, rejected also species of every kind. He held that no such media are necessary for the perception of things. In this he was followed by two great men of a succeeding age, Gassendi and Descartes, both of whom denied the possibility of any resemblance between thought and things known, but who nevertheless left the nature of sense-perception very ill-defined.

Descartes did an essential service to philosophy in asserting the intellectual character of sense-perception more strongly than had ever been done before; and his employment of the word "idea," to signify the immediate object of the mind in any mode of perceiving or thinking, has resulted in the modern use of the term to denote a thought of any kind whatever. Previously to his day *ideas* meant what Plato understood by them, — that is, eternal patterns of things in the Divine mind.

After Descartes the doctrine of perception by means of species underwent various fortunes, being incased and protected by the scholastic terminology, yet weakened by every new advance in psychological analysis. The learned Père Malebranche, whose doctrine of "occasional causes" made perception immediately dependent on Divine interposition, was a noted defender of sensible species; while Antony Arnauld, the distinguished Jansenist, discarded species, and identified the idea of the object with our perception of it. Even Arnauld, however, held that the idea of the object was representative of it, and the immediate object of perception; and this seems to have been the view of Locke also. Locke expressly says that "idea is the object of thinking;" teaching, however, at the same time that "the ideas of sensation are, in the mind, no more the likeness of something existing without us than the names that stand for them are the likeness of our ideas." Berkeley and Hume so developed this doctrine of Locke as to leave no objects of thought save ideas only.

Thomas Reid, 1710-1797. At last Thomas Reid, the stalwart apostle of common sense, arose and thoroughly destroyed the theory of representative perception in all its forms. No one can study the writings of Reid without being mightily convinced that, in perception, we deal with the object itself, and not with any species, or idea, or representation of it, in the mind. We perceive the object itself, and not a vicarious substitute.

The position of Reid may be illustrated by citing part of his "first reflection on the common theory of ideas." This theory, he says, "is directly contrary to the universal sense of men who have not been instructed in philosophy. When we see the sun and the moon, we have no doubt that the very objects which we immediately see are very far distant from us and from one another. We have not the least doubt that this is the sun and the moon which God created some thousands of years ago, and which have continued to perform their revolutions in the heavens ever since. But how are we astonished when the philosopher informs us that we are mistaken in all this; that the sun and moon which we see are not, as we imagine, many miles distant from us and from each other, but that they are in our own mind; that they had no existence before we saw them, and will have none when we cease to perceive and think of them; because the objects we perceive are only ideas in our own minds, which can have no existence a moment longer than we think of them! If a plain man, uninstructed in philosophy, has faith to receive these mysteries, how great must be his astonishment! He is brought into a new world, where everything he sees, tastes, or touches is an idea, — a fleeting kind of being, which he can conjure into existence or can annihilate in the twinkling of an eye. After his mind is somewhat composed, it will be natural for him to ask his philosophical instructor, 'Pray, sir, are there, then, no substantial and permanent beings, called the sun and moon, which continue to exist, whether we think of them or not?' Here the philosophers differ. Mr. Locke and those that were before him will answer that it is very true there are substantial and permanent beings called the sun and moon; but they never appear to us in their own person, but by their representatives, the ideas in our own minds, and we know nothing of them but what we can gather from those ideas.

Bishop Berkeley and Mr. Hume would give a different answer to the question proposed. They would assure the querist that it is a vulgar error that there are any permanent and substantial beings called the sun and moon; that the heavenly bodies, our own bodies, and all bodies whatever, are nothing but ideas in our minds; and that there can be nothing like the ideas of one mind but the ideas of another mind. There is nothing in Nature but minds and ideas, says the Bishop;—nay, says Mr. Hume, there is nothing in Nature but ideas only; for what we call a mind is nothing but a train of ideas connected by certain relations between themselves."

The treatise from which the foregoing is quoted is an irresistible demonstration of the falsity of the representational view of external perception, and a strong vindication of the truthfulness of the dictates of common sense. In particular, ideas or species, as intermediate objects, are shown to be things merely hypothetical, assumed, without any evidence of their existence, in order to explain facts which they really tend to explain away.

Reid's doctrine criticised Clarke, Porterfield.

At the same time it is to be confessed that Reid succeeded better in refuting erroneous views than in developing and defending a theory of his own. His doctrine is defective both in regard to our *acquired perceptions*, to which class all our more noticeable sense-cognitions belong, and in regard to those *original perceptions* on which the acquired are founded. He made a mistake in denying the fact relied upon by the advocates of representational perception, that, in some sense at least, the immediate cognition of the distant is a thing impossible.

Certainly, with our present constitution, an object must act on the mind to be perceived; such being the case, it is rational to suppose that only those objects are immediately perceived which act immediately, and that other objects which act through them are perceived inferentially, although it may be by a simple, easy, and instantaneous inference. Even were we to suppose disembodied spirits to have a power of external cognition in no way conditioned on impressions from without, it is impossible to believe that they could exercise that power if entirely separated from the object and from all means of communication with it. We reject Reid's doctrine of the immediate perception of the distant as being contrary both to fact and reason.

Original and acquired perception as distinguished by Reid. An important distinction.

The teaching of this philosopher respecting original sense-perception is not so objectionable as that which we have just considered, and which pertains to acquired perception only. His account of original perception is defective rather in the mode of its conception and expression than in the principal matter presented. Believing every act of cognition to be of a purely internal origin, and not, like sensation, the effect of external causes, he was led to say that perception is a kind of suggestion, or inference, made by the mind on the occasion of its sensations. Nevertheless, he held this to be an act of immediate cognition, because it is entirely independent of any past knowledge or perception of things, and itself originates both our conception of objects and our belief in their existence. Therefore, also, it is radically different from that suggestional, or inferential, cognition which it is the province of the reasoning faculty to supply.

Reid's doctrine of the immediateness of both original and acquired perception may be best gathered from a passage in his second essay. "In perception," he says, "whether original or acquired, there is something which may be called the sign, and something which is signified to us, or brought to our knowledge, by that sign. In original perception the signs are the various sensations which are produced by the impressions made upon our organs. The things signified are the objects perceived in consequence of those sensations, by the original constitution of our nature. Thus, when I grasp an ivory ball in my hand, I have a certain sensation of touch. Although this sensation be in the mind, and have no similitude to anything material, yet, by the laws of my constitution, it is immediately followed by the conception and belief that there is in my hand a hard smooth body of a spherical figure, and about an inch and a half in diameter. *This belief is grounded neither upon reasoning nor upon experience; it is the immediate effect of my constitution; and this I call original perception.*

"In acquired perception the sign may be either a sensation or something originally perceived. The thing signified is something which, by experience, has been found connected with that sign. Thus, when the ivory ball is placed before my eye, I perceive by sight what I before perceived by touch, that the ball is smooth, spherical, and of such a diameter and at such a distance from the eye; and to this is added the perception of its color. All these things I perceive by sight, distinctly and with certainty. Yet it is certain, from principles of philosophy, that if I had not been accustomed to compare the informations of sight with those of touch, I should not have perceived these things by sight. I should have perceived a circular object, having its color gradually more faint towards the shaded side; but I should not have perceived it to have three dimensions, to be spherical, to be of such linear magnitude, and at such a distance from the eye. That these last-mentioned are not original perceptions of sight, but acquired by experience, is sufficiently evident from the principles of optics, and from the art of painters, in painting objects of three dimensions upon a plane which has only two. And it has been put beyond all doubt by observations recorded of several persons who, having, by cataracts in their eyes, been deprived of sight from their infancy, have been couched and made to see after they came to years of understanding. . . . This power, which we acquire, of perceiving things by our senses which originally we should not have perceived, is not the effect of any reasoning on our part; it is the result of our constitution and of the situations in which we happen to be placed."

In the foregoing the word "sign," as applied to a sensation, is used in a peculiar sense. *It indicates that the sensation, when experienced, is the occasion of a knowledge which yet results immediately from the constitution of the soul, and which therefore is not at all an inference from past knowledge.* It is also to be noticed that an original perception, or the sensation appropriate to it, becomes the sign for an acquired perception in precisely the same manner that a sensation is the sign for the original perception itself. Although the power of acquired perception is obtained in the course of one's experience, this perception is not of the nature of reasoning; it is not an inference, properly so called, but the direct result of our constitution as modified during the past experience. In the passage immediately subsequent to that just quoted, Reid goes on to argue this point at length.

The inferential nature of acquired perception. Pres. Porter quoted.

3. The doctrine of acquired perception, thus presented, has not been accepted as a final statement. Before the time of Reid, Bishop Berkeley, in his "New Theory of Vision," had skilfully analyzed our sight-perceptions of the distance and size of objects, and had shown them to be judgments in which ascertained standards of measurement are easily and unconsciously employed. Possibly the reasonings of Berkeley suggested to Reid the necessity of

distinguishing our original from our acquired perceptions; they certainly indicated and determined the direction in which later philosophy has advanced. During the present century the action of the reasoning power has been shown to be much more pervading than was formerly supposed; and at the time of our writing there is a general agreement that *acquired perception is an inference,—nay, that it is an inference founded on induction.*

In illustration of this we cite the following characteristically judicious remarks of President Porter. "It may surprise many," he says, "to learn that the processes employed in the acquired perceptions are processes of induction. Induction is usually conceived and described as a process which is appropriated to philosophical discovery, which requires wide generalization and profound reflection, and issues only in comprehensive principles and laws. A little reflection will satisfy any one, however, that the act of mind is the same with that performed in every one of the acquired perceptions. The difference between the two kinds of induction is not in the process, but in the materials upon and with which the mind performs them. But the acts, the fundamental assumptions, and the liability to error in both, are essentially the same."

Were we to add anything to these words, it would be simply to emphasize the statement that the circumstances of the origin and development of our inferential perceptions cause them to differ greatly from the formal operations of the reasoning power. In particular, the processes involved in them are so simple, and become so habitual, and take place so easily and quickly, that they escape from all ordinary analysis. To understand them requires special methods of observation and comparison. This distinction between our articulate reasonings and the instantaneous conclusions of perception should be fully recognized.

The doctrine of original perception perfected by Sir W. Hamilton. Hamilton quoted.

Reid's doctrine of original perception may be accepted as substantially expressing the truth. Rejecting both representative ideas and reasoning of any kind, it is truly a theory of immediate cognition. This immediateness is somewhat marred when perception is made the interpretation of a sign, or the belief suggested by an experienced sensation. Even while the interpretation or suggestion introduces a cognition which is independent of past knowledge, this cognition is represented as subsequent in time to the sensation upon which it depends, and seems to be separated by the sensation from the object perceived. There is reason for saying that the object is perceived *through*, or by means of, the perception of the sensation, and not simply *along with*, this latter perception. Such a mode of statement is an invitation easily accepted by a thinker of Kantian proclivities to question the authority of the "suggestions" of the mind, in regard to objects external to the soul; it also gives one who supposes the "interpretation" mentioned to be an ordinary logical inference the opportunity of showing that there is no ground for any such inference, — nay, that an original inferential perception is an absurdity. The latter objection is unjust, being grounded on misapprehension; the former may be partially met by saying that what is ultimate and irresistibly self-evident should be received as its own proof; yet both naturally present themselves.

The discussion of difficulties like these led to the inquiry whether the doctrine of the Glasgow professor was not capable of improvement. In particular, it was asked, "Have we not ground to believe in a perception yet more immediate than that which Reid describes?" and "May not the phenomena of such perception be set forth in terms more exactly expressive of its nature than any which have yet been used?" The answer to these questions was wrought out by Sir William Hamilton, and is the principal addition which his learned and laborious criticism has made to the philosophy of Scotland. His improvement of the doctrine of perception pertains to two points.

In the first place, discarding the statement of Reid and his immediate successors, that "perception follows sensation," or that "sensation is the antecedent of perception," Hamilton forcibly maintained that *both the sensation and the sense-affecting object, together with the proper characteristics and relations of the latter, are perceived directly and at once, and in the same intellectual movement.* And, secondly, he rejected all such terms as "interpretation" and "suggestion," and spoke of the "intuitions and presentations" of perception. "External perception, or perception, simply," says he, "is the faculty presentative, or intuitive, of the phenomena of the *non-ego*, or matter, — if there be any intuitive apprehension of the *non-ego* at all. Internal perception, or self-consciousness, is the faculty presentative, or intuitive, of the phenomena of the *ego*, or mind."

By these simple changes, in which Reid himself would have heartily acquiesced, Hamilton freed the doctrine of perception from a liability to be misapprehended, and rendered it in every way conformable to the common judgment and experience of mankind.

The foregoing sketch indicates how slowly and with what difficulty a satisfactory theory of perception has been reached by speculators. The earliest philosophers regarded the soul as a material essence, and its perceptions and thinkings as molecular motions resulting from the impact or attraction of external things. The membranous simulacra of Empedocles, constantly flying off from objects and entering through the avenues of sense, betoken a more thoughtful theorizer. Next we notice the obscure and half-developed views of Plato and Aristotle; the former of whom scarcely recognized any connection between thought and sense, and the latter of whom made perception the result of the combined action of the semi-corporeal sensitive soul and the immaterial rational mind. The sensible species of the schoolmen, produced by the percipient spirit, yet distinct from it, and the direct objects of cognition, may be taken as showing progress in the recognition of the intellectual character of perception. This progress is more apparent in the "ideas" of Occam, Descartes, Leibnitz, Arnauld, and Locke, which were identical with perceptions, yet the immediate objects of perception. These introduced the logical but self-destructive philosophies of Berkeley and Hume. Reid followed, denying that we perceive by representations, and teaching, though imperfectly, the doctrine of immediate perception. Finally, Sir William Hamilton expressed the truth by saying that our first cognition of things within, or in contact with, the sensorium is absolutely free from any process of inference, and that therefore it should be called presentative, or intuitive, perception.

CHAPTER XXXIV.

THE RELIABILITY OF PRESENTATIONAL COGNITION.

The reliability of sense-cognition. The question pertains to original perception chiefly. Anselm, Augustine, and Aristotle quoted.

1. THE question as to the reliability, or truthfulness, of the senses pertains chiefly to our original, or immediate, cognitions. Mistakes occur in acquired, or inferential, perception; but our original perceptions are never incorrect. The so-called deceptions of sense are merely wrong conclusions from facts immediately perceived. This is the position of Reid in his chapter on "The Fallacy of the Senses." In speaking of "the errors to which we are liable in our acquired perceptions," he even denies that such perceptions are those of sense at all. "Acquired perception," he says, "is not properly the testimony of those senses which God hath given us, but a conclusion

drawn from what the senses testify." Long previously to Reid, philosophers had recognized the reliability of immediate perception, and had ascribed fallibility only to the accompanying judgment. Anselm of Canterbury wrote: "Falsitas, non in sensibus, sed in opinione." St. Augustine, referring to the oar half dipped in water, says: "Si quis remum frangi in aqua opinatur, et, quum inde aufertur, integrari, non malum habet internuntium, sed malus est judex." And Aristotle taught that sense perceives its own things correctly, or with the least possible error, but may be mistaken in things accidental to it. We cannot be wrong in saying that we see something white, but we may be mistaken in saying that the white thing is this or that, — if, for example, we should say that it is, or that it is not, the man Cleon.

In considering the reliability of sense, we should bear in mind the fact remarked by Reid, that *by far the greater part of our perceptions are acquired.* This will enable us to see that in one part of every ordinary perception there is no possibility of error, and that there is another part in which one may find himself deceived. We may be mistaken in asserting some object to be yellow; for the apparent color may not truly reside in the surface of the object, but may result from the reflection of a yellow flame, or from our looking through stained glass, or from a jaundiced condition of the eye. But we may be certain that the soul sees something different from itself, and which may be distinguished from other things as the cause of a peculiar sensation of color. In other words, there can be no doubt that we see something yellow. After this manner all our ordinary perceptions may be analyzed.

Only a branch of a wider inquiry, which concerns human knowledge in general. Method of inquiry proposed. Aristotle quoted. Some things must be self-evident.

The question of the veracity of the senses is the principal branch of a more fundamental inquiry, with which it is practically identical; we mean that inquiry which concerns the reliability of presentational thought in general.

Since presentation is the ultimate source of all knowledge, the bearing of our present investigation is very broad. We are really to discuss the question, whether or not human knowledge in general has any good foundation.

Let us start out with the principle that something must be self-evident, if any things at all are true and can be known to be. This truth, which may be deduced immediately from the nature of inference, is one of the oldest doctrines of philosophy. Aristotle taught that nothing can be more unreasonable than to ask a reason for everything, and that some things must be evident of themselves. The most perfect inference is valueless if it do not rest ultimately on truths which are not inferred. Nothing can be supported unless there be that which needs no support; nothing dependent and derived without that which is independent and underived.

It is the office of philosophy — perhaps its most important office — to consider the nature and relations of self-evident truths so as to determine what may be the marks of their self-evidence. In other words, while making no attempt to prove the self-evident, we should be able, when called upon, to prove that it is self-evident and does not stand in need of extraneous support.

There is only one way in which this can be done; *we must consider attentively undoubted individual cases of intuitive conviction, so as to see in what respects they differ from other beliefs which are not intuitive.* Some, while admitting the possibility of this process, may say that it is useless, — that one might as well be asked to prove the visibility of the sun as the self-evidence of a thing self-evident, — that, in short, there can be no question as to the truth of things presentationally known. This is true in regard to one aspect or relation of our immediate perceptions; but it is not true in regard to their philosophical relations.

In practical matters, and in the primary and proper exercise of intuition, one never doubts the self-evident, or hesitates to act on his perception of it. But in speculation, when we deal not directly with sensible realities, but with mental reproductions and elaborations, it has been found possible both to deny that some things which are self-evident are so, and to assert that other things are self-evident which are not. The intuitional character ascribed to abstractions and generalizations is secondary and derivative, and is that only of the individual perceptions which they represent. And as in commerce gold is never rejected, while this may happen to notes "as good as gold," so general and abstract "intuitions," together with conclusions derived from them, are questioned, while actual individual perceptions never are. The most astounding errors have arisen from this theoretical rejection of our immediate cognitions.

The negative tests of intuition.

2. To counteract such speculative evils, certain tests or marks — certain rules of judgment, both positive and negative — may be employed, by means of which we may estimate the value of alleged intuitions. If such criteria can be found, not only the *ipse dixit* of philosophers, but also our own uninformed opinions, may properly be subjected to their authority.

The negative rules of judgment are based on those negative characteristics which belong to every true presentation.

For example, no belief is intuitive *which requires logical proof* before we can accept it. That the Kohinoor diamond exists, and that it is a crystal of carbon, may be assured convictions with persons who never saw the gem; but they are not intuitions.

It is clear, also, that *no remembrance* is an intuition; even the most perfect memory is only the reproduction of past thought, accompanied with the mental assertion that this thought was at the first presentationally obtained.

Again, *no general truth* is intuitional. Every general conception or proposition is formed by a process of abstraction; its truthfulness depends on the correctness of that process. Many general convictions are styled intuitions; nor do we find fault with this; but such language signifies only that they are immediately formed from intuitions. The general truths, that matter and its qualities exist, and that spirit and its powers exist, are intuitions, or presentations, only in a secondary sense.

In the next place, *no merely probable judgment* is intuitive. Every judgment of probability is of the nature of an inference; it is the selection by the mind, from several possible consequents, of that consequent which is supported by the greatest number of chances. Probable judgment may also be distinguished from the intuition of which we now speak, because the latter is always the perception of an object, while in the former we deal not with things, but only with conceptions which may or may not be found to agree with reality.

So, also, *no doubtful belief* is intuitive. We distinguish a judgment of doubt from a judgment of probability, because in the former our minds are not determined to any degree of confidence, but remain unfixed and wavering.

Finally, *no hypothetical conviction* is intuitive in the sense now considered. For such a conviction is not only inferential, but it is also based on supposition. We are now discussing presentational intuitions alone.

The use of the positive rules presupposes that of the negative.

Let us now turn to some rules which refer to positive characteristics, and which are much more determinative than the negative tests. The consideration of these positive rules shows at once that absolute confidence with which we may rest on presentational cognition, and the method by which we may satisfy ourselves whether any particular belief be intuitional or not. The use of these rules is based on the supposition that a certain number of our beliefs will stand the tests already considered. Let a conviction be neither a mere deductive conclusion, nor the memory of a past perception, nor an abstract and general proposition, nor a probable judgment, nor a doubtful belief, nor an hypothetical assertion, but so far as we can see, the presentational perception of either contingent or necessary fact. We have now what might be called a *prima facie* case of intuition, and are in a position to apply further and more conclusive rules of philosophical criticism.

Three positive marks of intuition: 1 Irresistible conviction; 2 Universal acceptance; 3 Logical consistency.

3. These have been variously enumerated by eminent writers, but they may all, we think, be reduced to three. In the first place, our intuitions, or presentative perceptions, are marked by that absolute and irresistible conviction which they produce; in the second place, the intuitions of each individual mind are marked by an agreement with those of all other minds, of which fact the common possession by our race of a large body of assured beliefs is a sufficient proof; and in the third place, the intuitions of the mind are marked by a perfect logical consistency and coherency with each other.

These tests, when faithfully employed, leave no ground for speculative scepticism, and render our analytic acceptance of intuitional truth as unconditional as our practical acceptance of it always is.

The first rule is the most fundamental; the other two furnish secondary proofs, whereby the perfect self-evidence of intuition may be more clearly seen and more fully acknowledged. For if our immediate perceptions were not absolute and irresistible convictions, it would matter little whether they were experienced by all men alike, or whether they were logically consistent with one another.

The irresistible conviction, mentioned as the fundamental mark of an intuition, is not the simple certainty which ordinarily attends immediate perception. *It is the conviction which accompanies experiments made for the purposes of philosophy, and which, in this way, falls under the scrutinizing observation of the investigator.* We appeal to that special and speculative exercise of self-consciousness which has sometimes been distinguished as reflection. This appeal is legitimate, and when properly made has always the same result.

Most philosophical schools, indeed, claim that consciousness in some way favors their theories, just as most theologians are able to find all their doctrines in the Bible.

> "Hic liber est in quo quærit sua dogmata quisque,
> Invenit et pariter dogmata quisque sua."

But the difficulty with many is that they cite consciousness rather in support of their own opinions than as a simple relater of truth. Many also expect an instantaneous decision of general questions, when they should look simply for the immediate presentation of the facts of spiritual life. Consciousness testifies only that our immediate and individual perceptions have an absolute and irresistible certainty. If the testimony of this witness be accepted and be rightly taken, many things will be put beyond dispute. If one doubt whether there be such a thing as thirst, let him eat salt victuals for a week without drinking water or any other fluid; his doubt will be removed. In like manner let one gaze upon some prospect, or listen to some strain of music, endeavoring at the same time to believe that there is nothing external to himself,—that he is deluded in supposing that he hears or sees anything. He will find the task an impossibility; that the presented facts admit of no denial.

The most extreme sceptics allow that this testimony of consciousness would be perfectly conclusive with them save only for certain speculative objections; and they confess that even as it is, their philosophy is powerless to affect their own immediate convictions. "Nature," says that prince of doubters, David Hume, "is always too strong for principle; and though a Pyrrhonian may throw himself or others into a momentary amazement and confusion by his profound reasonings, the first and most trivial event in life will put to flight all his doubts and scruples, and leave him the same, in every point of action and speculation, with the philosophers of every other sect, or with those who never concerned themselves in any philosophical researches."

The argument from "common sense" discussed. Aristotle, Cicero, Reid, Hume.

4. The essential strength of the argument in favor of the reliability of our immediate cognitions lies in the irresistible self-evidence of the cognitions themselves, as attested by the reflective consciousness. But as a strong tower, resting on a solid rock, may be rendered more immovable by buttresses, so our faith in the intuitions of which we are conscious may be corroborated by a comparison of our convictions with those of our fellow-men, and by an attentive consideration of the consistency and coherency of the intuitions with one another.

It is true that the strength of an immediate perception is in no way affected by any sense that we may have that the convictions of others agree or disagree with our own. When a man has the toothache, he is absolutely sure that he has it, and that he can have it, and cannot help having it; and he will hold these convictions in spite of any assertions on the part of others who have never had such a feeling, that they do not believe it to be a possible experience. In like manner a laboring man who handles a pick or a spade is absolutely certain that these tools have weight and solidity, shape and size; and he could not be shaken in this belief though the whole world should combine against him. But we must remember that the present discussion concerns the foundations of philosophical faith, and that this faith does not rest immediately in our presentative cognitions, but in general and abstract conceptions of them. This mode of conviction may be weakened, and it may be strengthened, by argument.

The absolute unanimity of our race in regard to matters presentationally known, and to such other matters as are fully subject to the knowledge and understanding of all, has been styled the *communis sensus*, or "common sense," of mankind; and this is an arbiter of opinion whose authority on fundamental questions is so great that many have taken it as the chief starting-point of all their reasonings, while even the most erratic pay it some respect. The universal belief of men was a cornerstone in the philosophy of Aristotle. He declares: "What all believe, that we affirm; and whoever rejects this, will find nothing more worthy of confidence." Cicero considered the natural judgment of all men unquestionably correct. "De quo omnium natura consentit, id verum esse, necesse est," are his words. Reid's constant appeal is to "the universal consent of mankind, not of philosophers only, but of the rude and unlearned vulgar." Kant's "practical reason" is but a sublimated misconception of common sense. Even Hume, who, beyond any other, rejected the control of this monitor, formulates for us an excellent rule, the violation of which is magnificently illustrated in his own writings. "A philosopher," he says, "who proposes only to represent the common sense of mankind in more beautiful and more engaging colors, if, by accident, he commits a mistake, goes no farther, but, renewing his appeal to common sense, and the natural sentiments of the mind, returns into the right path, and secures himself from any dangerous delusion."

This agreement of mankind in regard to a large body of convictions *has its principal philosophical value in that it proves the convictions to have been correctly constructed.* Without adding to the native force of intuition it gives assurance that this force has been rightly used and formulated; which assurance is produced alike whether the beliefs which are found to agree be those of particular perceptions or those of general convictions.

Wherever one goes, all over the world, he finds that other men perceive the same things — for example, the same objects in some rural scene — in the same way that he does himself; and also that the general views of men, formed from their particular perceptions, are similar to his own. In this way many fundamental convictions concerning the existence and the nature of entities, and the laws of their being, have become the common property of mankind. The parts of the physical universe, the operation of natural causes, the relations of time and space and quantity, the daily life and experience of men, and the inward workings of the human mind and heart, are all the objects of the concordant particular perceptions, and of the uniform general convictions, of the whole family of Adam.

Evidently this unanimity involves a sameness in the original data of our belief, as well as in our deductions from them. In short, our natural judgments being made honestly, and without any other aim than the ascertainment of the truth, our agreement in them may be compared to that of a number of mathematicians, whose independent solutions of the same problem prove their work to be correct. Only it is to be noticed that in complicated questions we often accept opinions on the authority of others, while our appeal to that common sense of which philosophy speaks, simply confirms convictions which we have already found ourselves competent to form.

The second part of the argument from common sense.

Another reason on account of which our faith in intuition is corroborated by the consent of mankind — or rather another form of the same reason — is founded on the fact that no conflict ever occurs between the intuitions of one man and those of another. If it could be shown that different and discordant natural beliefs were experienced by different men or classes of men, and that no reason could be given why one set of such convictions should be received and another rejected, this would indicate a radical inability on the part of the human family to perceive the truth.

The authority of common sense cannot be impeached on the ground of any such discord. It is true that the judgments of insane persons, even as to things extremely evident, differ from those of other men. This difference, however, can be plainly traced to the substitution of unreal fancies for actual cognitions, and is always connected with manifest absurdities; for which reasons no weight of authority attaches to it. On the contrary, if a Bedlamite could consider his own case rationally, the difference between himself and the rest of the world as to his being made of glass or iron, or being a millionnaire or an emperor, would furnish him sufficient ground for investigating the formation of his views, in order to see whether they were anything more than wild imaginings. But lunatics, like many great philosophers, are distinguished by a mental independence which elevates them above the authority of common sense.

Recapitulation.

Such is the argument from the universal agreement of men. The scope of it is not to show that things self-evident are to be believed because all men believe them, but to show that certain truths must be self-evident or necessarily connected with the self-evident, because all men believe them. And this argument assumes two forms. First, the consent of men enables us to determine more accurately what intuition teaches, which teaching is then to be believed simply for its own truth; just as many witnesses might testify that some honest man made a given statement, which statement we would then believe, not because of the testimony of the witnesses, but because of the honesty of the man. And, secondly, the absence of conflict between the immediate cognitions of different rational beings shows that no flaw can be found either in their account of their intuitions or in the intuitions themselves. No disagreements can be detected in the statements of the honest man, as learnt from many witnesses; we therefore accept with confidence that understanding of his words which is common to all The argument from common sense presupposes that all men have a faculty of perceiving truth, and then shows that the experience of the race agrees fully with that supposition.

The consistency and coherency of our intuitions.

5. Our concluding argument in favor of the reliability of our immediate cognitions is derived from the consideration that the acceptance of these never involves any absurdity, while the rejection of them always does. This reasoning is allied to the secondary form of that just considered, and has even been identified with the argument from common sense. Hamilton, in his "Discussions," says: "The argument from common sense postulates, and founds on the assumption *that our original beliefs be not proved self-contradictory.*" In this statement, however, we suppose that Hamilton lays no emphasis on the word "common." What we are taught is that the self-evidence of our immediate cognitions, no matter whether they may be considered as convictions of the individual or as convictions of the race, becomes especially clear when we observe their perfect logical consistency.

But, to complete the strength of this argument, we may add that the truth of intuitions is illustrated also by their logical *coherency.* In other words, our speculative faith in our cognitions is corroborated not only by the consideration that they do not conflict with each other, but also by the consideration that they support one another. For presentational convictions, whether in their individual or in their generalized forms, often condition one another logically, and may be said to stand to one another in the relation of reason and consequent. In perceiving the substance of one's own body or soul, we perceive that it must occupy space, and in perceiving our own activities, we perceive that they must come from some powers or potencies; therefore the existence of the space may be inferred from that of the substance, and the existence of the power from that of the activity. A little consideration will make it evident that all things of which we can have presentational knowledge, whether immediately connected with each other or not, are so bound together by a network of conditions that they may be also inferentially known.

Such being the case, since every confirmatory inference thus goes back to an immediate cognition, it seems clear that every immediate cognition may be proved from an immediate cognition. The perception of a polecat by smell may be confirmed by the simultaneous sight of the animal; or, to use a more pleasant illustration, the hearing of a voice or footstep may be confirmed by the entrance of a friend, or the remembered cognition of some scene may be corroborated by a second survey of it.

Thus the absurdity of rejecting any form of presentational truth results in part from its inseparable connection with other similarly self-evident truths. The denial of space is absurd because involving the denial of body and of motion, and indeed of all objects and events; for nothing can exist or take place save as in space. And the extreme absurdity of disbelieving one's senses arises from the fact that we cannot do so without rejecting many connected intuitions. "I resolve not to believe my senses," says Reid. "I break my nose against a post that comes in my way; I step into a dirty kennel; and after twenty such wise and rational actions, I am taken up and clapped into a mad-house." The folly of such conduct and of such theory as is here described is complex, and made up of correlated parts; it is thorough-going.

The logical connection of intuitions worthy of more attention than it has received.

This logical connection of our presentational perceptions is worthy of study, because it is the first logical connection of things of which the mind is cognizant, and that in which the radical principles of all reasoning are first found. Hitherto it has been overlooked; chiefly, we think, because, as a philosophical doctrine, it is less important than either the logical independence or the logical consistency of our immediate cognitions.

CHAPTER XXXV.

THE NATURE OF SUBSTANCE.

1. THE great majority of man's perceptions are acquired, or mediate, and are inferences based on his original, or immediate, cognitions. Therefore an understanding of original perception precedes that of acquired perception. The latter mode of cognition is dependent on the former, not only for its conceptions and for the data of its inferences, but also, in a sense, for the principles on which its inferences proceed. Such being the case, the doctrine of original perception is very completely the basis of the philosophy of perception in general.

Objects of perception, direct and indirect.

We have discussed the nature of immediate perception, and have seen the reliability of it as a source of knowledge. Let us now consider the objects of our immediate cognition, and endeavor to conceive clearly and define the generic nature of the objects which become known to us in the exercise of this power. These may be regarded as either direct or indirect, — the former being the proper objects of sense-perception and consciousness, the latter being more properly the objects of concomitant perception.

The direct objects of consciousness are our spirits, together with their powers and operations; those of sense-perception are the matter of our bodies, and its powers and operations. Let us consider, first, these direct objects of our perception, and then those the cognition of which, though no less immediate, is less direct.

History of the doctrine of substance

Foremost among the objects of direct perception, we find substance, — that is, what we have already mentioned, under its generic forms, as matter and spirit. The leading philosophers of the last century taught that we are not immediately cognizant of substance, but only of its powers or qualities, and of its operations and changes. There is no good ground for this doctrine; but the adoption of it by philosophers may be accounted for by various reasons. The fact that substances are seen only as in operation, and that the interest of the mind is specially determined to the operations and the qualities manifested in them, has much to do with it; this is the truth which has given vitality to the error. A cause more closely connected with philosophical thought may be found in the confusion and obscurity with which the idea of substance has been affected from the earliest times, and from which it is not entirely free at the present day.

In the metaphysical and logical treatises of ancient writers, and particularly of Aristotle, substance is frequently mentioned, and many statements are made concerning it; but no one has yet combined these statements into a consistent and intelligible account, nor does this seem a thing possible. For sometimes what is said applies to a metaphysical substance only, — that is, to that substance in which powers may be inherent, — but more frequently it refers to the logical substance, — that is, to any entity whatever, considered independently and as an actual or possible subject of predication. The confusion of these two notions threw obscurity on both.

For the logical substance, with which ancient philosophy mainly concerned itself, has this peculiarity, that it may be identified with the sum of its attributes, being precisely the same complement of entity with the attributes, though viewed in a peculiar light; while the metaphysical substance, of which spirit and matter are the subordinate genera, is really, objectually, different from its attributes, and is not the same thing thought of in a different way.

Such being the case, two opposite mistakes resulted. First, the logical substance was supposed to have an existence distinct from that of its attributes; and, secondly, the metaphysical substance was denied to have any existence other than that of its attributes. These mistakes, together with the difficulty inherently belonging to an abstruse subject, led some philosophers to speak of substance as the mysterious and incognizable substratum of attributes, and others to question the existence of any such thing as substance. This latter view is too directly contradicted by common sense to merit much attention; but the former is supported by great authority.

Locke, Reid, and McCosh quoted.

Before Locke's time two definitions of substance prevailed among the schools. That which sets forth substance as "ens substans accidentibus," was generally preferred to that according to which substance is "ens per se subsistens." Each of these was applied to both the metaphysical and the logical substance; but, of the two, the former is more applicable to the logical, and the latter to the metaphysical. With regard to both kinds of substance, the expression "ens per se subsistens," from which Spinoza reasoned to one only substance, erroneously interprets that independence of conception which belongs to the idea of substance, as if it were an independence of existence belonging to substance itself.

Rejecting this definition, Locke took the other, conjoining with it what had long been taught by philosophers, that substance is a thing mysterious and incognizable. His views are fully expressed in the second book of his "Essay," and may be illustrated by the following quotation: "When we talk or think of any particular sort of corporeal substances, as horse, stone, and so forth, though the idea we have of either of them be but the complication or collection of those several simple ideas of sensible qualities, which we use to find united in the thing called horse or stone; yet because we cannot conceive how they should subsist alone, nor one in another, we suppose them existing in, and supported by, some common subject; which support we denote by the name of substance, though it be certain that we have no clear or distinct idea of that thing we suppose a support. The same happens concerning the operations of the mind, — *viz.*, thinking, reasoning, fearing, etc., — which we, concluding not to subsist of themselves, nor apprehending how they can belong to body, or be produced by it, are apt to think the actions of some other substance which we call spirit."

Remarking on these teachings, Locke says: "He that would show me a more clear and distinct idea of substance would do me a kindness I should thank him for."

In the foregoing, one sees how Locke does not distinguish the metaphysical from the logical substance; which he should have done.

The perplexity of subsequent thinkers may be illustrated from Reid's writings. "I perceive in a billiard ball," he says, "figure, color, and motion; but the ball is not figure, nor is it color, nor motion, nor all these taken together; it is something that has figure and color and motion. This is a dictate of Nature and the belief of all mankind. As to the nature of this something, I am afraid we can give little account of it, save that it has the qualities which our senses discover. It seems to be a judgment of Nature that the things immediately perceived are qualities which must belong to a subject; and all the information that our senses give us about this subject is that it is that to which such qualities belong. From this it is evident that our notion of body or matter, as distinguished from its qualities, is a relative notion; and I am afraid it must always be obscure until men have other faculties."

In opposition to such teachings as these, and their evil consequences, Dr. McCosh remarks: "It is high time that those metaphysicians who defend radical truth should abandon this unknown and unknowable substratum, or noumenon, which has ever been a foundation of ice to those who would build upon it. . . . We never know quality without knowing substance, just as we cannot know substance without knowing quality. . . . True, the substance is never known alone, or apart from the quality; but as little is the quality known alone, or apart from a substance. Each should have its proper place, neither less nor more, in every system of the human mind."

In his "Intuitions," also, McCosh describes substance as a form of being endowed with power and permanence. *This is not an analytic definition, but simply the determination, or indication, of a conception, by the use of distinguishing properties.* It is important to remark that the notion of substance is no more capable of analysis than are those of space, time, power, and change; it is something simple, and to be defined only by the relations which belong to the nature of substance.

The attempt to define substance analytically has been one cause of the confusion of philosophers respecting it. To say that substance is actual entity as permanently related, or as having permanent attributes, which is the teaching of President Porter, is not satisfactory; for substance — that is, metaphysical substance — is a peculiar and indefinable *kind* of being, and is distinguished by its own essential attribute of *substantiality*, as well as by other properties which connect themselves with this. Moreover, logical as well as metaphysical substances may be either actual or possible, and may have permanent relations and attributes. The definition misses the mark; and this because the mark — that is, the kind of definition to be given — was misconceived.

Accepting metaphysical substance as having an undefinable peculiarity, — as being, in fact, one of the *summa genera* of entity, — the distinction between this and the logical substance becomes plain. We see, too, how these conceptions are so related to each other that the same object may in one aspect be a metaphysical, and in another a logical, substance. The former, when distinguished from its powers and other attributes, is conceived of as having its own essential attribute of substantiality; the logical substance, whether it be a metaphysical substance or not, is simply a complement of entity viewed indeterminately, — that is, as *materia secunda* or as *materia prima;* and therefore, when distinguished from its attributes, is conceived simply as an entity, or an existence.

The spatiality of substance. Descartes, Locke.

2. Another source of error concerning substance has been the denial of one of the necessary properties of this kind of entity, — namely, its extension, or spatiality. This denial has taken place in connection with the distinction between spirit and matter as the two kinds of substance. Till quite lately, modern philosophy, following Descartes, has taught that matter is the *unthinking, extended substance,* and spirit the *thinking, unextended substance;* and that therefore there may be substance without extension. This doctrine is simply a philosophical assumption. While indicating a laudable desire to contrast matter and spirit, it is supported only by the fact that the extension of matter is more noticeable than that of spirit.

Hamilton, who holds this view, admits its modern origin. In his "Discussion" of the philosophy of the "Conditioned," he writes: "The difficulty of thinking, or rather of admitting as possible, the immateriality of the soul, is shown by the tardy and timorous manner in which the inextension of the thinking subject was recognized in the Christian Church. Some of the early Councils, and most of the Fathers, maintained the extended, while denying the corporeal, nature of the spiritual principle; and though I cannot allow that Descartes was the first by whom the immateriality of mind was fully acknowledged, there can be no doubt that an assertion of the inextension and illocality of the soul was long and very generally eschewed, as tantamount to the assertion that it was a mere nothing."

With us the difficulty, which Hamilton recognizes, of admitting the inextension of the soul is insurmountable. We cannot conceive anything to exist save as in space, nor of any substance as existing except as occupying or pervading space.

Locke, writing twenty years after the death of Descartes, and knowing the views of the latter, by no means admits the inextension of spirit. In a discussion concerning identity he says: "We have the ideas of but three sorts of substances, — God, finite intelligences, bodies. First, God is without beginning, eternal, unalterable, and everywhere; and, therefore, concerning his identity there can be no doubt. Secondly, finite spirits having had each its determinate time and place of beginning to exist, the relation to that time and place will always determine to each of them its identity as long as it exists. Thirdly, the same will hold of every particle of matter to which, no addition or substraction of matter being made, it is the same. For though these three sorts of substances, as we term them, do not exclude one another out of the same place, yet we cannot conceive but that they must necessarily each of them exclude any of the same kind out of the same place; or else the notions and names of identity and diversity would be in vain, and there could be no such distinction of substances, or anything else, one from another."

This passage is conformable to the rational conjecture that spirit and matter do not occupy space in the same way, and that psychical substances have a subtilty, a fineness, and a continuity of being which enable them to penetrate the coarser substance, body, with as much freedom as if the space were vacant.

We would not, however, say that spirit can occupy the very same space which is occupied by the ultimate atoms of matter; and perhaps the words of Locke do not suggest so much as this.

Other passages in the writings of this philosopher show that he deprecated any undue distinction between material and spiritual substance. In a discussion subjoined to the third chapter of the fourth book of his "Essay," he says: "So far as I have seen or heard, the Fathers of the Christian Church never pretended to demonstrate that matter was incapable to receive a power of sensation, perception, and thinking from the hand of the omnipotent Creator. I know nobody before Descartes that ever pretended to show that there was any contradiction in it. So that, at the worst, my not being able to see in matter any such incapacity as makes it impossible for omnipotency to bestow on it a faculty of thinking, makes me opposite only to the Cartesians."

To some these statements may savor of materialism; but it is to be observed that they are purely hypothetical, and that *the matter mentioned in them simply signifies something possessing "extension and solidity," while this solidity is such only as must belong to any external object before it can affect the senses in accordance with the ordinary laws of sensation.* Locke was no materialist.

Porter, McCosh, Hamilton, quoted.

Few, if any, of the leading philosophers of the present day positively assert that spirits possess extension; this doctrine, however, is implied in the teachings of some. When President Porter defines sensation "a subjective experience of the soul as animating an extended sensorium," and when he says that "in each sensation the soul knows itself to be affected in some separate part of the extended organism which it pervades," it is natural to infer that the soul, which animates an extended organism and perceives itself to be affected in every part of the organism, is itself an extended being.

Some words of President McCosh are similarly suggestive. He says that "we intuitively know the organism as out of the mind, as extended, and as localized," and that "at every waking moment we have sensations from more than one sense, and we must know the organs affected as out of each other and in different places." If the intuition of bodily parts, as different and separate, require the immediate presence of the thinking agent, this presence must involve a soul which can pervade the body.

At the same time we should note that Dr. McCosh does not consider this conclusion a necessary one; for in another place he writes: "I am inclined to think that our intuition declares of spirit that it must be in space. It is clear, too, that so far as mind acts on body, it must act on body as in space, — say in making body move in space. But beyond this I am persuaded that we have no means of knowing the relations which mind and space bear to each other. As to whether spirit does or does not occupy space, this is a subject on which intuition seems to say nothing, and I suspect that experience says as little."

With the foregoing statements we may compare those of Hamilton, who writes as follows: "In the consciousness of sensations relatively localized and reciprocally external, we have a veritable apprehension, and consequently an immediate perception, of the affected organism, as extended, divided, figured, and so forth. . . . An extension is apprehended in the apprehension of the reciprocal externality of all sensations." Sensations external to one another seem to indicate an extended soul.

To us it is clear that the extension of the soul and the extension of the body are perceived at the same time and as correlated with one another. But we allow that the space-relations of the soul are apprehended very indefinitely, and are probably not so fixed as those of the body, and they do not excite the interest or engage the attention of the mind.

Moreover, the unity of the conscious spirit is inconsistent with the use of organs possessing distinct functions; and no matter where within the sphere of the soul's presence any sensation or other activity may originate, it seems instantly participated in by our whole being. Hence the paradox of Aristotle, that the soul is all in every part of the body.

We content ourselves, therefore, with the statement that spirit and matter are both discerned as substance, and that this form of entity is perceived, and conceived of, as having the occupation or pervasion of space for a distinguishing mark or property; for power, action, change, and the various accidents of substance, cannot be said to occupy space, but only to pervade or accompany substance in its occupation of space.

The potency of substance.

This brings us to conclude our account of the conception of substance, by saying that we generally think of it as the repository and possessor of power.

Power, whether active or passive, cannot reside in, or be exercised by, a space or a time, a shape or a relation, or anything except a substance. Nothing can be done or endured unless there be something which has the ability to do or to endure; that something is a substance. The permanence of any power, or the continuance of its activity, is conditioned on the permanent existence of the substance to which it belongs. These things are intuitively perceived by us whenever we observe the operation of any power.

The description of substance which we have now attempted need not be regarded as fundamental to any system of philosophy, although the doctrine set forth in it may be allowed to have some importance.

CHAPTER XXXVI.

THE PERCEPTION OF SUBSTANCE.

Soul and body known by intuitive perception. The primary principles thus obtained. Plato quoted.

1. OUR first knowledge of spirit and of matter is obtained from an intuitive, or immediate, cognition of our own souls and our own bodies, — that is, from our consciousness of our own souls as in different states and operations, and from a perception of our own bodies as affecting our souls and as being affected by them. All subsequent knowledge is derived and developed from this.

The primary lesson taught by this immediate cognition contains two closely related truths. We perceive, first, that *the soul is not the body, nor the body the soul;* and, secondly, that *the qualities* (*that is, the powers*) *of the soul, and the qualities, or powers, of the body, are extremely different in nature from one another.* Spirit in relation to matter, and matter in relation to spirit, is both ἄλλον and ἀλλοῖον. This double distinction, intuitively made, is admirably illustrated by a passage in a dialogue of Plato. Socrates is conversing with Alcibiades.

"Hold, now," says Socrates, "with whom do you converse at present? Is it not with me? *Alcib.* Yes. *Socr.* And I also with you? *Alcib.* Yes. *Socr.* It is Socrates then who speaks? *Alcib.* Assuredly. *Socr.* And Alcibiades who listens? *Alcib.* Yes. *Socr.* Is it not with language that Socrates speaks? *Alcib.* What now? Of course. *Socr.* To converse, and to use language, — are not these then the same? *Alcib.* The very same. *Socr.* But he who uses a thing and the thing used, — are these not different? *Alcib.* What do you mean? *Socr.* A currier, — does he not use a cutting-knife and other instruments? *Alcib.* Yes. *Socr.* And the man who uses the cutting-knife, — is he different from the instrument he uses? *Alcib.* Most certainly. *Socr.* In like manner the lyrist, — is he not different from the lyre he plays on? *Alcib.* Undoubtedly. *Socr.* This, then, was what I asked you just now, — Does not he who uses a thing seem to you always different from the thing used? *Alcib.* Very different. *Socr.* But the currier, — does he cut with his instruments alone, or also with his hands? *Alcib.* Also with his hands. *Socr.* He then uses his hands? *Alcib.* Yes. *Socr.* And in his work he uses also his eyes? *Alcib.* Yes. *Socr.* We are agreed, then, that he who uses a thing and the thing used are different? *Alcib.* We are. *Socr.* The currier and the lyrist are therefore different from the hands and eyes with which they work? *Alcib.* So it seems. *Socr.* Now, then, does not a man use his whole body? *Alcib.* Unquestionably. *Socr.* But we are agreed that he who uses, and that which is used, are different? *Alcib.* Yes. *Socr.* A man is therefore different from his body? *Alcib.* So I think. *Socr.* What then is the man? *Alcib.* I cannot say. *Socr.* You can say, at least, that the man is that which uses the body? *Alcib.* True. *Socr.* Now, does anything use the body but the mind? *Alcib.* Nothing. *Socr.* The mind is therefore the man? *Alcib.* The mind alone."

This dialogue brings out the intuitive conviction of mankind. The truth which it enunciates is to be found in the language and literature of all nations; and every form of monistic philosophy, in attempting to destroy the distinction between mind and matter, simply rolls up the stone of Sisyphus, that it may fall back again to the plain of common sense.

The words of Hierocles express the judgment of the race, —

> "Σὺ γὰρ εἶ ἡ ψυχή· τὸ δὲ σῶμα σόν."
> "The soul *thou* art; the body, — it is *thine*."

Our specific conceptions of soul and body. Preliminary remarks.

2. Let us now consider, more specifically, the conceptions of soul and of body which intuition enables us to form. These for the most part are entertained in contrast with one another. The distinctive attributes of the two kinds of substance being extremely different from one another, yet being constantly perceived in correlation, our conceptions of the substances which they characterized are naturally opposed. We do not always and necessarily conceive of the mental and of the material as differing from each other; each may be, and often is, regarded positively and independently. But *because the two are so frequently viewed in correlation, it is not strange that in our ordinary conceptions of them the idea of difference and negation should mingle with our apprehension of what is positive.*

This is especially noticeable in our conception of body. Hence many philosophers make the starting-point — the primary element — of their definition of matter to be that it is the *non-ego;* in other words, the substance which mind perceives as different from itself. In like manner we find a tendency to define the soul as immaterial, — that is, as devoid of the distinctive attributes of body. There is nothing wrong in this.

For in defining the leading cognitional conceptions ot the intellect, we should present, as nearly as may be, the analytical expression of these conceptions *as they are actually and ordinarily entertained.* In this way only we can hope to exhibit truly the workings of the mind itself, and therein also to attain exact and clear views of the objects of its thought. Philosophical definitions, formed independently of the common sense and judgment of mankind, or without an impartial and careful interpretation of that judgment, have often proved the chief cornerstones for an edifice of error. The cause of truth is always served most perfectly when the conceptions of the mind are given according to their full natural development.

Spirit and matter defined.

With these views, and remembering that substance is that form of entity which occupies space and is endowed with power, we venture two definitions. We say, first, that mind, or spirit, is the *thinking*, *self-active*, *and intangible substance;* and, secondly, that body, or matter, is the *unthinking*, *self-helpless*, *and tangible*, *or solid*, *substance.* As these statements are opposed to each other throughout, they may be made the subject of a common discussion.

Thinking and unthinking substance. Epicharmus.

The first element in our definition of spirit has in all ages been regarded as the principal characteristic of this kind of substance, and as sufficient of itself to form a distinctive definition. By a natural antithesis, also, matter has always been regarded as the unthinking substance. Mind — mind only — thinks.

Thought, in this connection, is considered not merely in its own proper nature, but as symbolizing all those peculiar powers which consciousness reveals. The term is employed in that broad sense which ordinarily should be shunned, and of which Descartes took an undue advantage when he declared that the essence of the soul consists in thought.

Although, in strict speech, intellectual activity is not even all of the experience of the soul, much less all of the soul itself, it is the most prominent part of psychical life, and the chief condition of its development. No emotion, desire, or voluntary action can take place without thought. Only to sensation thought is not prerequisite; yet it is difficult to believe that sensation could take place save in a being which should at least have a consciousness of that experience.

When we define spirit as the thinking substance, — that is, the substance endowed with sensation, intellect, emotion, desire, volition, and all those powers which we distinguish as psychical, — we simply formulate the natural and intuitive judgment of man respecting his own nature. As might be expected, the doctrine thus presented is a very ancient one. Five hundred years before Christ, Epicharmus, the Herodotus of Grecian comedy, tempering his fun with wisdom, wrote: —

> "*Νοῦς ὁρῇ καὶ νοῦς ἀκούει, τἄλλα κωφὰ καὶ τυφλά.*"

— words which belong, not to Epicharmus, but to all the children of Adam.

> **"What sees is mind, what hears is mind;**
> **And all things else are deaf and blind."**

For when we conceive of spirit as the thinking substance, we plainly deny that the other substance from which it is distinguished can think, or have psychical experience. This negative teaching of Epicharmus and of common sense is founded partly on the fact that matter never in any way manifests psychical activity, and partly, we believe, on our natural perception of the incapacity of matter to do so. Whatever evidences of plan and desire material things may at any time present, they never exhibit any intelligence or feeling of their own. The laws of their action, so far as these can be observed, are purely mechanical, or molecular.

Design, when indicated by any arrangement or organization in Nature, presents itself exactly like design when displayed in the construction and operation of some artificial machine. The most careful scrutiny finds nothing more in every such organization than an assemblage of correlated parts which act one upon another according to fixed laws, each part unvaryingly performing its own function and giving no token of conscious intelligence.

Nor does the organization as such, being simply the sum of its parts in their correlation, show an intelligence of its own. Its action is merely the resultant of the operations of its parts.

Not only so; we perceive a unity and simplicity in every thinking substance which we find wanting in every physical structure or arrangement. Thought cannot be conceived of as the interaction of any collection of heterogeneous substances, whether great or small, but only as the activity of one simple, or indivisible, substance. And seeing that every physical organization is composed of parts and particles, we feel that we might as well ascribe the intention of pulling or holding to a rope or chain as that of growing to a seed or of bearing fruit to a tree, or as well the purpose of shining and giving light to a candle as that of seeing to the eye or of hearing to the ear.

Moreover, being forced to concede an intelligent Being separate from those organizations which are the proofs of his existence, we do not confine the presence of this spirit to the structures of his own formation. We find abundant reason for ascribing to him an unrestricted sphere of activity. A theory which would confine the unseen Author of the universe within his physical creations would be no less absurd than to say that the human spirit exists within the instruments and agencies it forms and uses. It is not credible that the marvellous Mind which fashioned the universe and gave it laws was employed, while doing so, in making chains and a prison for himself. Such a task would be equally irrational and impossible for such a Being.

The self-active and the self-helpless substance.

A second, and also secondary, element in our conception of spirit is that *it is self-active;* corresponding to which characterization, we have the attribution of *self-helplessness* to matter. The point of contrast between body and mind, thus presented, has not received much attention from philosophers; but we believe that it is realized and felt by men generally. We often think and speak of spirit as something active and living, and of matter as something dead and inert; of spirit as that which controls and moves, and of matter as that which is controlled and moved. Such statements express a truth, although it may be too strongly.

As we have said, substance of whatever kind is known to us as endowed with powers, both active and passive, so that, on the one hand, we cannot deny active power to matter, nor, on the other, passive power to mind. The majestic motions of the heavenly bodies, the volcanic and oceanic changes which geology considers, the growth of plants and animals, the movements of clouds and currents overhead, the chemical dissolutions and compositions going on around us, attest the activity of material potencies. On the other hand, so far at least as the present condition of our race is concerned, it is plain that the human spirit is constantly subject to the action of physical agencies, as these operate, directly or indirectly, upon our nervous system.

We cannot therefore make the distinction that mind is the substance which acts, and matter the substance which is acted upon. Matter also acts; and mind also is acted upon.

Nevertheless, there is a difference, if we can only apprehend it, between the modes of action proper to each substance. Every spirit seems to be endowed with a power of activity within itself, so that the current of its life, once opened, flows on forever. Human experience, while stimulated, guided, and modified by influences from without, properly originates from powers within. Hence a state of things is conceivable in which the soul, being freed from bodily conditions and affections, may pass a life the producing cause of which shall be wholly the energy of the soul itself. Such is the activity which we naturally ascribe to God and to angelic spirits. No such capability of automatic action is found in any particle of matter or in any material substance.

No body acts save when it is acted upon. The most violent of physical agents lie perfectly inert and helpless till some cause external to themselves arouses them. Chemical molecules show no independent activity, but simply act one upon another when the proper conditions are supplied. Mechanical motion is imparted from one body to another, and obeys the law that action and reaction are equal. Matter acts only when acted on by mind, or when acted on by other matter, — never in any other case; and this inertness, which is frequently included in our conception of physical agents, we have termed the self-helplessness of matter.

The tangible and the intangible substance. Finally, we designate mind the intangible substance, and matter the tangible, or solid, substance. Solidity, or tangibility, is the principal characteristic of matter, and has the same place in our conception of matter that thought has in our conception of mind. Thus, substance in general being characterized by the occupation of space and the possession of power, one kind of substance is distinguished by the peculiar nature of the power which it possesses, while the other kind is marked by its peculiar mode of the occupation of space. We think it a sufficient and distinctive definition to say that matter, or body, is the tangible, or solid, substance. Generally, too, our conception of spirit involves a negation of this attribute, just as that of matter excludes the power of thought.

Here it must be noted that we use words in a far wider signification than ordinarily belongs to them, and in a sense which only necessity can justify. By "tangibility" and "solidity" we mean precisely the same thing, using two terms that each may qualify the other. We mean that peculiarity whereby matter occupies space to the exclusion of all other matter, — a quality which is made known to us only through sense-perception, and which, as always involving a reference to this mode of cognition, might be styled the sensible occupation of space.

This attribute has a simple and indefinable character, whereby it is distinguished from the occupation of space in general, just as the conception of thought, which is the essential mark of spirit, is similarly distinguished from that of action, or movement, in general. It is to emphasize this peculiarity that we have employed the expression "tangibility." By this term we do not mean tactility, or the capability of perception by touch, but that quality which makes material substances capable of impinging on the organs of sense and on each other, and which is the condition of all sense-perception whatever.

The term "solidity" is more directly expressive of this idea, but must be received with qualifications. The solidity which belongs to matter universally cannot be contrasted with a liquid or aeriform condition; nor is it simple spatiality or extension. It is that kind of space-occupation which must belong to an agent before it can affect the senses in any way, by impinging upon their organs; for, as Democritus taught, nothing external can be perceived save through the affection of some bodily organ, by a contact. Some have styled this attribute the ultimate impenetrability, or incompressibility, of matter. We prefer the name "solidity," and would treat impenetrability, or incompressibility, as the immediate consequence of the solidity.

Our ordinary perception of solidity.

3. Our ordinary perception of material things as solid enters into, and helps to constitute, the exercise of our externally directed senses, and is especially a part of perception by touch. We question whether sight, hearing, taste, and smell would, of themselves, and aside from the tactile sensations which mingle with their proper and special feelings, impart a knowledge of solidity. This is properly indicated by sensible impact, which impact is perceived by touch.

Experience, however, reveals that the agents which affect the other senses are the same, or of the same radical nature, with those which affect the touch. We trace hearing to vibrations in the air, smell and taste to finely diffused particles, and sight to the motions of a medium evidently material, inasmuch as it produces chemical and mechanical effects. Thus a sort of tangibility belongs to everything perceived outwardly.

But while a perception of solidity is part of our perception of things external to the body, and is especially connected with the sense of touch, there is reason to believe that our original perception of this quality, and that from which the conception of solidity is derived, takes place when one perceives the solidity of his own body.

Our original perception of solidity. Two theories.

Two theories on this point are possible. First, it has been held that the sense of touch alone enables us directly to perceive the solidity of those external agents which may affect us by impact or pressure. This sense has been regarded as duplex, — as acting in part by means of a titillation of the surface of the body and in part by a sense of pressure experienced in the muscular system; and it has been held that the mind, perceiving pressure from without, directly conceives and asserts an external solid substance as exercising the power manifested by this pressure. According to this view, the sense of pressure from without is an occasion on which, without any previous and more immediate perception, matter, or the solid substance, is conceived of and believed in. This view is that given by Locke, Reid, and others, and is allied to the doctrine of inferential realism.

Later philosophers, attempting a more profound analysis, have held that the cognition and conception of matter external to our own bodies is not absolutely original, but is consequent on the perception of the matter of our own bodies.

They divide the sensations which result from causes within the body into two comprehensive classes, — first, *the vital, or organic*, which embraces such feelings as those of wakefulness or drowsiness, of vigor or languor, of hunger and thirst, of heat and cold, and all the various pains and pleasures directly resulting from health or from disease. None of these can be said to have a special organ, though some of them are localized and others generally diffused. They pervade the whole sensory system. In connection with them perceptions of extension and location may take place, but scarcely a perception of the solid. The second class of internal sensations are *the muscular*. These probably have nerves specially assigned to them, and, as distinguished from such organic feelings as may occur within the muscles, may be regarded as including two kinds of sensation, — namely, that resulting from *the exercise of muscular power*, or "locomotive energy," as Hamilton terms it; and that resulting from *the pressure of the muscular parts one upon another*. This latter feeling may be experienced alone, as when a hand lying on a table has some weight laid upon it; but it also is an accompaniment of the other, for in all muscular effort or resistance the muscular fibres press one upon another.

The importance of these muscular sensations arises from the fact that the mind, while experiencing them, comes into immediate and unmistakable relation with two things, —*force* and *matter;* the latter being seen as the subject in which the former dwells, and the object upon which it is expended.

The simple conception of matter may be supposed to originate in connection with the sense of internal pressure; for then the mind intuitively perceives the solidity of the sensorium which it pervades. The conception of force may be supposed to arise both in connection with this pressure — in which the compressing power, no less than the matter resisting it, is presented — and in the perception of muscular effort or resistance (that is, of man's own locomotive energy). Of the two theories of the origin of our idea of matter which we have now stated, we prefer the latter, as it makes the perception of solidity absolutely immediate, and thus conforms to the doctrine of presentational realism.

Locke on matter and spirit.

The definitions of matter and of spirit advocated in the present discussion are essentially those of Locke. He says: "Our idea of body, as I think, is an extended solid substance, capable of communicating motion by impulse; and our idea of soul, as an immaterial spirit, is of a substance that thinks, and has a power of exciting motion in body by willing or thought. These, I think, are our complex ideas of body and soul, as contradistinguished." Here, plainly, thought is made the chief attribute of spirit; and solidity, of matter. The capability of moving by impulse is added by Locke so as to define and complete the idea of solidity.

The dynamical theory of matter.

In the foregoing discussion we have not thought it necessary to notice the dynamical theory of body, which identifies matter with force. It is simply one form of the doctrine which denies the existence of substance, and is similar in nature and origin to the idealism of Berkeley and the associationalism of Mill. The argument for it is that qualities, or powers, are the only things known to us, and that we have no right to believe in anything else. The assumption here made is false. Substance is known to us as truly and as immediately as the powers which it possesses, or the force which it exerts. It is true that powers and qualities may be spoken of without mention of that substance to which they belong, and even whole books may be written after this style; but all such language has a tacit reference to substance.

CHAPTER XXXVII.

MATTER AND ITS QUALITIES.

1. HAVING, according to our ability, defined spirit and matter, let us discuss this latter substance and its leading characteristics. Although few philosophers have attempted the exact definition of matter, almost all have undertaken to set forth the leading characteristics of this kind of substance. Some consideration of these is desirable if we would conceive correctly the generic forms of human thought.

The various attributes of spirit are studied directly and in detail elsewhere by the psychologist, and do not now call for special consideration; but matter is studied only in connection with sense-perception, and it is a part of the philosophy of this perception to determine the nature of our conceptions and convictions concerning material things. The end of metaphysical inquiry regarding any subject other than the mind itself is accomplished when we may have determined the principal ideas which we rightfully entertain concerning that subject.

The leading characteristics of body do not include its essential attributes only, nor even those only which, though not conceived of as essential to the very nature of matter, universally accompany that nature as its necessary properties or accidents. These characteristics include, together with the essential and necessary attributes, those also which, to any very wide extent, affect material substances, and determine our more general conceptions concerning them. Some confusion has prevailed on this point; and this, united to an indistinct conception of the essential nature of matter, has retarded the progress of philosophy in the inquiry concerning material properties. Any one who desires to trace the history of opinions respecting this subject will find a full and masterly discussion in one of the "Dissertations" of Sir William Hamilton, in which, also, the views of Hamilton himself are ably presented. One's estimate of these views will be modified and determined by the conception and definition of matter he may be able to form; but in any case they may be accepted as an advance on the opinions of all preceding authors, and as the basis for the satisfactory settlement of questions that have been long debated.

Aristotle quoted: common and proper sensibles. Locke: primary and secondary qualities.

Aristotle was the first who formally enumerated the necessary attributes of body, and distinguished them from others which do not of necessity belong to matter of every kind and in every case. In his treatise concerning sense (cap. i.), he divides things perceivable by sense into two classes, — the *common*, which are perceived by all or most of the senses; and the *proper*, the perception of which is peculiar to one sense or to another. The common sensibles, according to Aristotle, are figure, size, motion, rest, and number (*λέγω δὲ κοινὰ σχῆμα, μέγεθος, κίνησιν, στάσιν, ἀριθμόν*), elsewhere adding to these, place, distance, position, and continuity. The proper sensibles are such things as smells, colors, tastes, sounds, together with the percepts of touch, such as the rough and the smooth, the hard and the soft, the hot and the cold, the light and the heavy; and they include also that radical property of matter which we have named solidity.

Two thousand years after the Stagirite taught the doctrine which we have now explained, Locke made his noted distinction between the primary and secondary qualities of matter. "Qualities in bodies are," he says, "first, such as are utterly inseparable from the body in what state soever it be. . . . For example, take a grain of wheat, divide it into two parts; each part has still *solidity*, *extension*, *figure*, and *mobility*. Divide it again, and it retains still the same qualities. And so divide it on till the parts become insensible; they must retain still each of them all those qualities. For division (which is all that a mill or pestle, or any other body, does upon another in reducing it to insensible parts) can never take away either solidity, extension, figure, or mobility from any body, but only makes two or more distinct separate masses of matter of that which was one before; all which distinct masses, reckoned as so many distinct bodies, after division make a certain number. These, therefore, I call *original or primary qualities* of body, which I think we may observe to produce simple *ideas* in us, — *viz.*, solidity, extension, figure, motion, or rest, and number; secondly, such qualities as, in truth, are nothing in the objects themselves but powers to produce various sensations in us by their primary qualities, — that is, by the bulk, figure, texture, and motion of their insensible parts, *such as colors, sounds, tastes, and so forth, — these I call secondary qualities.*"

With these secondary qualities Locke classed also "the power that is in any body, by reason of the particular constitution of its primary qualities, to make such a change in the bulk, figure, texture, and motion of another body as to make it operate on our senses differently from what it did before. Thus the sun has a power to make wax white, and fire to make lead fluid." Elsewhere Locke adds to the primary qualities situation and texture, or consistency.

Comparing Locke with Aristotle, as to his view of the universal attributes of matter, there is, at first sight, no important difference. Inspection, however, reveals that the modern differs from the ancient philosopher in two respects.

First, his point of view is different. Locke speaks of common qualities, not of common sensibles; *he regards the things perceived, as in their relation to matter, the direct and fundamental object of sense-perception, rather than as related to our various senses, or faculties of perception.* This is an improvement; for the inquiry and thinking of the mind is naturally objective, and even in philosophy we wish to know the objects of thought in themselves rather than in their relations to our means of knowing them. This latter point of view is subordinate to the former.

Secondly,—and what is more important,—Locke adds solidity to the list of Aristotle, and in so doing not only gives the most essential of all the sensibles, *but also leads us to modify and determine correctly our conception of those attributes which Aristotle mentions.* This addition was rendered possible by the point of view which the inquiry of Locke assumed. There might be a question whether solidity is really a common sensible, as this attribute is specially discerned in connection with tactual and muscular sensations. But there can be no question that solidity is an universal and essential attribute of matter, and that attribute by which alone the affections of sense are rendered possible.

Such being the case, we may say that *the remaining attributes are not things conceived of simply, but things conceived of as perceptibly belonging to a solid substance.* Number, for example, belongs to spirits, and their thoughts and powers, as well as to material entities; in fact, the number here mentioned is simply the perceptible numerical difference pertaining to the separable portions of matter. Hence it is often indicated by the term "divisibility." So, also, rest and motion are not peculiar to bodies; for souls go and stay wherever the bodies containing them may go and stay. In like manner size, as distinguished from mere spatiality, or extension, indicates that space-occupation which is perceivable by the senses. Figure denotes that definite shape which we are led to assign to every material body, and to the particles of which it is composed. All these are common sensibles, not simply *per se*, and by reason of their own nature, but specifically, and as they are related to matter and its solidity.

In connection with the foregoing, and confirmatory of it, we note that *the radical characteristics of body, as given by Locke and Aristotle, are all conditioned on the space-relations of matter.* They have nothing to do with time-relations. No mention is made of the endurance of matter, although it is evident that all bodies are perceived as having a permanency of existence; neither do they include the characteristic of potency, although all matter is perceived as having causative power. The reason for this omission we find in the fact that the real aim of both authors was to enumerate the universal properties of matter, so far as these are immediately conditioned on its essential attribute, rather than an exhaustive list of the universal predicables of matter. This, at least, was Locke's intention.

The chief importance of this topic. Hamilton quoted.

Aside from its historical interest, the discussion as to the primary characteristics of body is important chiefly as confirming the thought that solidity is the essential attribute in our ordinary conception of matter; for this doctrine is the key to the whole inquiry. Hence some, who have supposed the question limited to the essential or constitutive characteristics, have discarded all attributes save "extension and solidity." M. Royer Collard, the able French advocate of the Scottish philosophy, took this position. But in defining matter we think that extension may be omitted, for it is presupposed in solidity; the mention of it only makes our conception of body more explicit.

Accepting, as the primary attributes of matter, extension, solidity, and such other characteristics as are universally and peculiarly connected with these, we are prepared to consider those attributes which very widely characterize material substances without being necessarily connected with the existence of matter everywhere and always.

These have been the theme of great discussions. A critical review of opinions concerning them, as also concerning the primary qualities, may be found in that extremely able paper to which we have referred, and which is the most valuable of those "Dissertations" which Sir William Hamilton published as "Notes" on the philosophy of Reid.

The chief defect in Hamilton's discussion is that he does not sufficiently distinguish solidity as the central and essential thought in our conception of matter; he rather makes this to be extension, and solidity to be a necessary property of extension. No theory of body and its qualities which misses the true distinction between these two attributes can prove satisfactory. But the "Dissertation" is a masterly production, and may be accepted as the basis for a settlement of the vexed questions of which it treats.

Hamilton's list of primary qualities is as follows: "1. Extension; 2. Divisibility; 3. Size; 4. Density or Rarity; 5. Figure; 6. Incompressibility absolute; 7. Mobility; 8. Situation." Here divisibility is the same as the number of Aristotle; size and density are of the same radical nature, for each is a kind of quantity, and the two together form an absolute measure of the quantity of matter in any body; and incompressibility indicates solidity, of which it is the immediate consequence. The list would seem to us incapable of improvement, provided only solidity were added immediately after extension, and allowed to qualify our conceptions of the remaining attributes.

The non-primary qualities. Distinguished and divided into two classes.

2. But the "Dissertation" goes on to discuss those qualities which are not primary. These are divided into two classes, *the secundo-primary* and *the secondary*. The ground of this division is not stated; but it plainly lies in the fact that matter exercises power in two ways. For, in the first place, matter can act variously upon other matter; and, secondly, it can act on the soul so as to excite various sensations, through the affection of our sensorial organization. The former class of qualities are styled "secundo-primary," because they are perceived only in the action of body on body as such, and therefore in a sense may be said

to involve solidity and the other primary qualities; but the latter class is termed "secondary," because they are first perceived simply as powers (resident, of course, in some substance) to produce certain sensations within the soul.

It is true that secondary qualities may often be explained, and may always be accounted for, as immediately resulting from some particular development of the secundo-primary; and cases arise in which powers belonging to these two classes may form a unity and be thought of together and under one conception. For example, hardness and softness, roughness and smoothness, may be regarded both as certain dispositions of the particles of solid bodies, and as the causes of certain sensations in our nervous system.

The distinction, however, between the secundo-primary and the secondary is rightly made, even though it may sometimes call us to discriminate a thing as viewed in one light from itself as viewed in another. It is not weakened, but confirmed, by the analysis of those cases in which the two modes of quality combine; and it is necessary if we would describe and distinguish our conceptions of outer things according to their natural formation in the mind.

That a reference to solidity qualifies our conception of the secundo-primary characteristics of matter is taught by Hamilton when he says that *these qualities are known by pressure;* for this is the indication of solidity. His words are: "They have all relation to space and to motion in space, and are all contained under the category of resistance or pressure." We would prefer to say that they all *become known to us in connection with pressure and resistance.* Moreover, we prefer a different statement from that of Hamilton, when he says that the secundo-primary qualities may be considered in two lights, — the objective, or physical, and the subjective, or psychological; the latter referring to the sensations which they are able to cause. Whenever qualities are viewed simply as the causes of sensations, we would consider and call them secondary; but whenever they may be viewed as related to both physical and psychical effects, we would regard them as a combination of the secondary with the secundo-primary. But secundo-primary qualities, *per se*, seem wholly physical, or objective.

Finally, that peculiar class of qualities which Locke inclines to place with the secondary may better be regarded as secundo-primary qualities *perceived and conceived of by means of an external character or relation.* Though they refer to psychical results, they immediately relate to the action of matter upon matter.

The secundo-primary qualities enumerated.

We shall now give Hamilton's account of the secundo-primary qualities almost in his own words. His classification of the qualities has reference to the general nature of the forces manifested in them. These are of three kinds, — namely, that of *co-attraction*, that of *repulsion*, and that of *inertia*.

a. There are two subaltern genera of co-attraction, — to wit, that of gravity, or the co-attraction of the particles of body in general; and that of cohesion, or the co-attraction of the particles of this and that body in particular. Gravity or weight, according to its degree, which is in proportion to the bulk and density of ponderable matter, affords the relative qualities of the heavy and the light. Cohesion, using that term in its most unexclusive universality, is the basis of many species of qualities. Without proposing an exhaustive list, we enumerate: (1) the hard and the soft; (2) the firm or solid, and the fluid or liquid, — this last being subdivided into the thick and the thin; (3) the viscid and the friable; (4) the tough and the brittle; (5) the rigid and the flexible; (6) the fissile and the infissile; (7) the ductile and the inductile; (8) the retractile, or cohesively elastic, and the irretractile; (9) the rough and the smooth; and (10) the slippery and the tenacious.

b. The force of repulsion is manifested in greater or less degrees of resistance to compression, — that is, in (1) relative compressibility and incompressibility; and also in greater or less degrees of resiliency, or the elasticity of repulsion, — that is, (2) in resiliency and irresiliency.

c. Inertia — or, more fully, the *vis inertiæ* — is the tendency whereby body continues in a state of rest or of motion till acted upon from without. Combined with bulk and cohesion, it results in the movable and immovable, — that is, the easy and the difficult to move.

In the foregoing list the powers of chemical combination and of molecular adhesion are omitted, and should perhaps be added to those qualities which are enumerated under the general head of cohesion. The tendency to chemical combination is an important and widely operative attribute of matter; and so, also, is that adhesive force which is exhibited in capillary action, in the solution of a solid in a liquid substance, and in the saturation of one fluid substance by another. Such is the enumeration of Hamilton.

Secondary qualities are causes conceived of by an external mark.

3. We now pass to the secondary qualities of matter. These may be defined as causes existing in body to produce the various sensations of which man is capable, considered without reference to their own constitution, but simply as the causes of the sensations.

We may be ignorant of the nature of that which produces some sensation in us, while yet we are sure that there is something external to us which has a power to affect us in a given way. Only philosophic research reveals the nature of such things as color, sound, odor, heat, cold, and so forth; but every one knows that things are colored, sonorous, odoriferous, hot, and cold, for these are all the objects of special perceptions.

We cannot approve of the language of Professor Stewart and other authors who speak of secondary qualities as the unknown causes of our sensations; this language is calculated to mislead. Every such quality is known as a cause, and much even may be ascertained of the character of the cause. But it is to be allowed that our conception of the quality does not contain any reference to the particular constitution of the cause, and may be formed and entertained while we are ignorant of that constitution.

That *secondary qualities are of the nature of causes* is taught by Locke when he says that they are "nothing but powers to produce various sensations in us;" which doctrine has come down from Aristotle, and accords with the universal belief of men. When men say that fire is hot, and that grass is green, and sugar sweet, and thunder loud, they mean not only that we have given sensations, but that there is a power in certain things to produce these feelings. To ascribe such a power to any object does not necessarily involve that any soul is or will be actually affected by it, but only that the proper affection can and will be produced whenever the object may be brought to act on the sensorium. There is literal truth in what the poet says : —

> "Full many a gem of purest ray serene
> The dark unfathomed caves of ocean bear :
> Full many a flower is born to blush unseen,
> And waste its sweetness on the desert air."

Moreover, there is no reason to suppose that the external quality resembles the feeling in the mind, or partakes of its nature. The quality is simply a power in some material substance to cause a peculiar motion in the matter of our nervous system ; and even this motion is something wholly different from sensation, the latter being an affection of the mind excited by the nervous action, but deriving its peculiar character from the activity of the mind itself. The perception of the quality takes place when we perceive the sensation *as an effect and as determined by some cause not within the soul itself.*

These remarks will explain that war of words as to whether heat and cold, colors, sounds, tastes, and smells exist in external objects, or in the mind only, or in both. They plainly reside in both, but in different senses. The sensations of heat and cold, color and taste, are in the mind only ; the external causes or conditions of these sensations reside in bodies. It is the part of such sciences as acoustics and optics to ascertain the nature of these causes and the mode of their operation; and modern investigation only confirms the conjecture which Aristotle ascribes to Democritus, that savors, odors, and colors consist in the configuration and action of particles of matter.

Summary of views.

The views which have now been advocated may be summed up as follows. *By the qualities of body philosophers have meant those properties which belong exclusively to matter, or the solid substance.* The principal primary qualities are *solidity, size, figure, mobility, divisibility, and situation ;* to which possibly two or three others less noticeable might be added. These are conceived of, not abstractly, but as attributes necessarily, and therefore universally, accompanying solidity.

The secundo-primary qualities are powers which bodies have to act upon one another. They also are immediately perceived, and conceived of, as *connected with solidity, yet not necessarily concomitant of it.* Only solid bodies are known to attract and repel each other in space, and to resist any change from a state either of rest or of motion. Yet we might conceive matter to exist without any powers of attraction or repulsion or inertia. Science has established that some of the laws according to which matter acts upon matter are very general. The proposition has been ably maintained that gravity and inertia are universal attributes. It is the province of scientific inquiry, not of immediate intuition, to determine such questions and all others relating to the nature and extent of the secundo-primary qualities of body.

Finally, the secondary qualities are *powers residing in material things to produce sensations in us.* We cannot accept the language of Hamilton when he says : " As we are chiefly concerned with these qualities on their subjective side, I request it may be observed that I shall employ the expression *secondary qualities* to denote those phenomenal affections determined in our sentient organism by the agency of external bodies, and not, unless when otherwise stated, the occult powers themselves from which that agency proceeds." Only confusion can result if we identify sense-affecting qualities with the affections which they produce. But we may conceive of powers without reference to the physical conditions out of which they arise. We may do so even while ignorant of the nature of such conditions, the essential or differentiating element in our conception being purely relative, and based on the effect which the power produces; thus we conceive of the secondary qualities of matter.

The real ground of the division of properties, which we have now considered, *lies in the different ways in which our perception and conception of solidity — or of extension and solidity, the essential properties of matter — are related to our perception and conception of material properties in general.* While all the qualities, according to our ultimate understanding of them, belong exclusively to matter, the primary attributes are perceived, and conceived of, as necessarily belonging to all extended and solid substances; the secundo-primary as belonging only to matter or the solid substance, yet, so far as we can see, contingently; while the secondary qualities are perceived, and conceived of, without any such perception of their relation to an extended solid. From the first they are perceived as powers belonging to a substance other than the soul, and external to it; but it is by subsequent comparison and judgment that they are connected with solidity in the substances which they characterize. Hence our conceptions of them do not ordinarily contain any reference to solidity.

CHAPTER XXXVIII.

CONCOMITANT PERCEPTION.

Concomitant perception defined and established. Aristotle, Locke, and Reid quoted.

1. THE distinction between direct and concomitant perception has not received the recognition which it deserves. Most writers, and in particular those who have lived within the last one hundred years, have embraced all our immediate knowledge under the heads of consciousness and sense-perception.

They have been induced to do so partly because the same discussion applies largely to all our original cognitions, and yet more because our concomitant perceptions are so intermingled and united with those which are more direct, that the former have naturally been treated as subordinate parts of the latter.

This method of treatment has a great disadvantage. It brings the language of philosophy into conflict with that of common speech; it makes philosophy use words wrongly, and teach what is not strictly and literally correct. To say that space is perceived by sense-perception, and duration by consciousness, is to teach what is not true according to our ordinary conception of the operations and objects of these powers; neither can we say that the relations of number or quantity or causation are perceived by these powers, or by either one of them. But we can affirm that space, time, number, quantity, and causation are perceived *in connection with* the objects both of sense-perception and of consciousness.

The adoption of language other than this has led some to make a division of these common objects so as to assign some of them to sense-perception and some to consciousness, — a division arising solely from the assumption that there are only two modes of immediate cognition. The better plan in this case, as in every other in which it can be employed, is to conform the language of philosophy to that of daily life. Following this method, we may hope to obtain more correct apprehensions, both as to our perceptions and as to the objects of our perceptions, than can be obtained in any other way.

Although concomitant perception has not received any formal place in the systems of philosophers, their writings contain intimations which greatly justify its more perfect recognition. Aristotle teaches that there are three kinds of sensibles, or (as the word might be translated) of sense-perceptibles, and that two of these are perceived in themselves (*καθ' αὑτὰ*), while one is perceived by its accidents (*κατὰ συμβεβηκός*). By this last we understand the object of acquired perception, as when, seeing a white thing, we recognize the son of Diares; for to be the son of Diares is something contingent, and not necessary, to the whiteness perceived. About this kind of perceptibles we are sometimes mistaken.

Of things sensible in themselves, and about which we do not mistake, there are two kinds, — the *proper*, which belong severally to the several senses; and the *common*, which belong to all. The common are motion, rest, number, form, and size. But, adds Aristotle, "of things sensible in themselves, the proper are pre-eminently objects of sense perception, and things to which the nature of each sense is adapted" ("*τῶν δὲ καθ' αὑτὰ αἰσθητῶν, τὰ ἴδια κυρίως ἐστὶν αἰσθητὰ, καὶ πρὸς ἃ ἡ οὐσία πέφυκεν ἑκάστης αἰσθήσεως*"). Thus he makes the common sensibles to be the objects of sense only in a secondary and improper way. Elsewhere he styles them the concomitants and consequents (*ἀκολουθέντα, ἑπόμενα*) of the proper.

Locke, though very inadequately, recognizes concomitant perception as a "suggestion" of the mind. He says: "*Existence and unity are two ideas that are suggested* to the understanding by every object without and every idea within. When ideas are in our minds we consider them as being actually there, as well as we consider things to be actually without us, which is, that they exist or have existence; and whatever we can consider as one thing, whether a real being or idea, suggests to the understanding the idea of unity. . . . Besides these there is another idea, which, though suggested by our senses, yet is more constantly offered us by what passes in our own minds, and *that is the idea of succession;* for if we look immediately into ourselves, and reflect on what is observable there, we shall find our ideas always, whilst we are awake or have any thought, passing in train, one going and another coming, without intermission."

In much the same strain Reid writes: "*Extension seems to be a quality suggested* to us. We are commonly told by philosophers that we get the idea of extension by feeling along the extremities of a body, as if there was no manner of difficulty in the matter. I have sought with great pains, I confess, to find out how this idea can be got by feeling, but I have sought in vain." Elsewhere he says: "Space, whether tangible or visible, is not so properly an object of sense as a necessary concomitant of the objects both of sight and touch."

Concomitant differs from direct perception only as to its objects and our mode of viewing them, not at all in the radical character of its own action.

We style this perception and its objects indirect, not because they are any less immediate than those of other presentational cognitions, but because the attention and interest of the mind are less directly given to them than to the perceptions and objects which they accompany. The spectator of a horse-race attends primarily to the animals and their action. In connection with these he perceives — less directly, but no less certainly — the space traversed, the time occupied, and the changing positions of the contestants with reference to one another. Hence we divide his cognitions into the direct and the indirect, or the principal and the concomitant.

The objects of concomitant perception. Three classes.

2. The objects of perception in general are the same as the elements of existence in general. These may be enumerated as substance, power, action, change, space, time, quantity, and relation. These elements are never perceived save in the complexities which they form with one another. *The first four may be regarded as the direct, and the last four as the indirect, objects of perception.* When a ball is rolled on the ground, we perceive it as (1) a body, (2) en-

dowed with inertia, and (3) exercising a momentum which causes (4) motion, or change of place. At the same time these things are seen as (1) related to one another and to other similar objects, and to (2) space and (3) time, and as having (4) quantity. So, also, if the ball be propelled by one's own hands, he perceives (1) his own soul, and (2) his locomotive energy and (3) its action, and (4) the change in himself from one kind of activity to another. And these things are seen under their (1) mutual relations, and those of (2) space, (3) time, and (4) quantity.

This distinction, however, between modes of cognition refers primarily to the action of the mind, and only secondarily, and in a less rigorous way, to the objects of the cognition. It might especially be a question, in some particular case, whether change, or quantity, were perceived directly or indirectly; and the question would be unimportant.

The advantage of making our indirect perceptions a special object of study will become particularly apparent from two considerations: first, the fact that *necessary as well as contingent relations are, primarily, matters of immediate perception* has not hitherto had that prominence which is due to it in philosophy; and, secondly, it is clear that *the cognition of non-existence can have no place in a system of the human mind, unless it also be assigned to the sphere of concomitant perception.*

For the sake of method in further discussion, the presentations of this power may be regarded as having three classes of objects, and so, with reference to their objects, as being embraced under three heads. Under the first head let us consider the intuitions of space, time, and quantity; under the second, our perception of relations of whatever kind, including those of contingency and necessity; and under the third, our cognition of the non-existent and the impossible of every kind of entity.

Space, time, and quantity.

The objects of the first class are perceived in connection with relations which depend on them, yet *they themselves are not relations: they are fundamenta between which and other fundamenta relations exist.* To say, with Leibnitz and others, that "space is an order of co-existences, and time an order of successions," may be profoundly philosophical; but it is a violation of common sense. Space and time are the antecedent conditions of co-existence and of succession.

Moreover, not only are things related to these entities, but such relations may, in their turn, become the fundamenta of new relations. Two fields, as occupying certain positions, are related to space; and by reason of these positions, they may be contiguous to, or separated from, each other. The lives of two men are each related to those periods of time during which they are passed; and by reason of these relations, they may be contemporaneous with one another, or the contrary. Two bodies each contain a fixed quantity of matter; and with reference to their respective quantities, they are equal, or unequal, to each other.

Space, with its relations, is especially perceived in connection with body and its changes. Exact measurements of space are possible for us only through the use of material standards; yet spatial perceptions take place also in connection with the experiences of spirit. On the other hand, time is perceived especially in connection with the changes which occur in our own souls. Being conscious at once of the enduring sameness of the *ego* itself and of its fleeting states and operations, we cannot but notice that peculiar kind of entity in relation to which some things are permanent and others transitory. But body, no less than spirit, is intuitively seen as a permanent entity with transitory states; therefore, we doubt not, time is immediately perceived in connection with the existence and the changes of the *non-ego*.

The term "present" in philosophy.

Here we must remark that in the doctrine of immediate perception the term "present" should not be limited absolutely to one point of duration, but should include so much time as may be occupied by any act or object of unbroken attention. We claim for the mind a power to perceive immediately the continuity of time as well as the continuity of space; and we include this among our presentational perceptions. This is no violation of ordinary thought and language. On the contrary, it is unnatural to call a continuous perception of the continued present a recollection of the past.

This ability to perceive the continued must be admitted if there be any such thing as an intuition of time. It may be regarded as the initial exercise of that power which develops itself into memory; in which light it furnishes a key, perhaps the only possible key, to an understanding of the faculty of reminiscence.

The element of quantity is so intimately united in existence and perception with the other elements of entity, that only some special analysis, caused by the comparison of quanta, or things as having quantity, makes it a distinct object of thought. For this reason the perception of it does not have the character of concomitance to the same degree as the perception of space and time. But when two things — for example, two weights — alike in every respect save quantity, are compared and found to differ, then we give this name to that in respect to which they differ. We perceive, also, that the possession of quantity is the foundation for certain relations between things. It is as quanta that things are greater or less or equal in respect to each other, and are capable of number and of diminution and increase.

Have we an intuition of the infinite?

Here we may ask whether our first perceptions are confined to things of a limited nature, or do we have an intuition of the infinite?

In regard to this point we remark, first, that knowledge need not be intuitive in order to be reliable. By far the greater part of human knowledge is not intuitive; the presentational character is not necessary to the certainty of knowledge. Many, however, assuming more or less explicitly that the infinite cannot be known inferentially, have constructed doctrines as to the cognition of the infinite that are difficult to comprehend, and yet more difficult to accept. The student of such doctrines should be pardoned if at times he become weary of philosophy, or at least of philosophers.

But the discussion of these teachings has this merit, that it prepares one to accept some theory by which *the cognition of the infinite may be accounted for as a constructive and inferential perception.* Therefore we remark, secondly, that we find no serious objection to such a theory of inferential perception, and that, on the contrary, there is something unnatural, if not absurd, in ascribing the intuition of things infinite to finite creatures such as we are. It is certain that the knowledge of finite things greater than ourselves results from the employment of standards of measurement found in our own souls and bodies; in this way we attain to the cognition of things unspeakably great. May we not, then, in this manner become acquainted with things absolutely boundless?

The infinite is that which is so great, in any one or more respects, as to be immeasurable by any standard. Take the perception of infinite space. In connection with the motion of our limbs we learn that if there be no obstructing power, body may move without hindrance in any direction and to any distance. We perceive that this is necessary by reason of the very nature of space. Thereupon, combining negative with positive thinking, we conceive and believe in a space which admits in every direction of endless motion, and which itself is limitless. In precisely the same way we recognize a duration without beginning and without end. Then, with but another step, we conceive of a Being whose presence fills immensity, whose life is eternal, whose power is the ultimate origin of all finite potency, and whose existence solves the mysteries of creation and providence. We admit that finite beings cannot attain to any exhaustive knowledge of the infinite; we allow that no human, no angelic, mind can "find out the Almighty to perfection." But finite understandings can and do form true conceptions and convictions concerning boundless space and endless time and the infinite God.

Relations. Their perception twofold: 1. As matters of fact; 2. As matters of contingency and necessity.

3. The perception of relations is a very important part of intellectual action, and is equally concomitant of consciousness and of sense-perception. All things exist as related to one another, and as bound together in necessary or logical relations.

Relations have been described as intermediate entities; but, literally speaking, nothing exists between things related. The intermediacy pertains to our modes of conception, and not to the things conceived of. Every simple or single relation may be regarded as composed of two relationships, each of which belongs to and characterizes a relatum; and every relationship may be styled a sort of correspondence or opposition in the nature of one thing to that of another.

Relations exist between things viewed simply as entities, between the seven fundamental entities or their subordinate varieties, and between relations themselves. This class of objects, therefore, exhibit endless diversity and complexity. At present we are concerned with the *perception* of relations; and this, in common with the cognition of every other form of being, may be considered as twofold. First of all, we may perceive a thing simply as fact; and, secondly, we may perceive it as contingently or as necessarily fact — that is, in other words and more briefly, we may perceive its contingency or necessity. So we may perceive a relation simply as a fact, and we may recognize it as contingent or as necessary.

Few will dispute that the relations belonging to the direct objects of the soul's immediate apprehension are also immediately apprehended, — that is, so far as their simple reality is concerned. I perceive at once the relations of a leaden ball which I hold, — for example, its contiguity and likeness to another ball beside it, its place in my hand, and the relations involved in its shape, size, weight, unity, mobility, and so forth.

But when we come to inquire how far these perceived relations may be contingent and how far necessary, it may be claimed that our judgments regarding these aspects of things are not properly perceptions at all, but merely suggestions which the mind cannot but make, but which nevertheless may or may not be true. This is the teaching of Kant when he speaks of the *a priori* origin of various judgments and notions, and contrasts them with *a posteriori* judgments and notions. For example, he says that our ideas of space and time, and our necessary judgments concerning them, are *a priori*, — that is, independent of experience, and of the knowledge that experience gives of things without.

For, with Kant, *experience is really identical with our perception of things external.* Thus, according to him, our *a priori* notions and judgments have no necessary objective truth, — that is, no necessary truth at all. Such teaching is unsatisfactory.

The terms *a priori* and *a posteriori*, as applied to our perceptions of the ontologically necessary and the ontologically contingent, should be banished forever from the use of philosophy. Their effect is to confuse our thoughts in regard to the true action of the perceptive power. There is a difference in perceptions; but this arises, not because some ideas are suggested from within and others obtained from without, — not because some thoughts are subjective forms and others true cognitions, — but because *the things perceived are themselves different from each other.*

All our cognitions are equally the mind's own work, and result from the exercise of intellectual power, — all are perceptions of realities; but in some we perceive the existence of things and their relations merely as matter of fact, while in others we perceive it as necessary or as contingent fact. Therefore, also, whatever priority our perceptions of ontological necessity or contingency may have over those of simple fact, is not subjective, but objective, — it is logical rather than psychological; our distinction between these things arises primarily from the nature of the things distinguished, and only secondarily from the nature of mind as being able to perceive correctly things and their differences.

Contingency and necessity objects of concomitant perception.

The immediate cognition of things merely as existing may be divided, with a sort of equality, between direct and concomitant perception; but that of the contingency or of the necessity of any matter of fact belongs to concomitant perception only. That the space occupied by any particular body necessarily exists, and that the body necessarily is an occupant of space, are things perceived immediately, but not directly. That the body does not necessarily occupy the space it is in, but may move into some other space, and that a neighboring body of the same size may occupy the space left vacant, are contingent truths perceived in the same way. These perceptions of necessity and of contingency are not properly included within sense-perception.

Contingency and necessity, which we have now given as objects to concomitant perception, may be regarded as *relations between the existence of things or relations, and the circumstances with which this existence is accompanied.* A thing is necessary or contingent in its relation with other things, according as its existence is or is not so united to that of the other things that no power can break the connection. It is on the immediate perception of the necessity and contingency of relations that general axiomatic propositions and postulates are based. For what is true either contingently or necessarily in one case is similarly true in all similar cases.

The cognition of non-existence.

4. We now pass to the cognition of non-existence. Concerning this, we say, first, that it is a true cognition. Non-existence is a subject about which correct views are more easily formed than uttered. Thought and language refer principally to the existent, and to non-existence merely in an occasional and subordinate way. Ordinary forms of expression properly apply to existence only, and when applied to non-existence, sometimes present an appearance of contradiction and absurdity. Nevertheless, both common sense and sound philosophy attest that we have as truly a perception of non-existence as of existence; that these things are totally different from one another; and that neither of them can be resolved into the other, or even into mere distinction from the other. They are objects which we distinguish because they are different.

Here we strain language when we call existence and non-existence things or objects; they are not things in the ordinary sense of the word. Yet when we thus speak of them, we do not use meaningless or untruthful language. Though not objects, they have, in some sense, an objectuality; and, in particular, non-existence, because it *is* that which existence *is not*, has also a peculiar character of its own. Let two parallel planes be apart; we say that there is space between them: let them meet; we say that there is no space between them. In this latter case the assertion of "no space," or of the non-existence of space, is as objectively true as the assertion of space, or of the existence of space, in the former case.

The importance of the thought of non-existence arises from a twofold fact. In the first place, this thought can combine with the formal conception of every entity, so as to constitute a negative conception, corresponding to the positive conception in which existence is the constitutive thought; and, secondly, all belief and conviction pertain to these two modes of conception, the positive and the negative. We can believe only in the existence or in the non-existence of things.

Our original cognition of non-existence may, in the truest sense, be styled concomitant or consequent. *This perception attends every mode of change and disappearance which occurs within the sphere of intuitive knowledge.* Let one be conscious of some pleasure, or other psychical experience, which passes away and is numbered among the things that are not. He retains a knowledge of the past existence of this pleasure, but with respect to the present he has no such knowledge. On the contrary, he perceives that the experience does not now exist; and, combining the formal conception of the thing perceived with the notion of non-existence, he declares it to be a nonentity. Or let some physical phenomenon — for example, a sound — affect the senses: it is perceived as existing; but when it ceases, its non-existence is also perceived.

Moreover, as the necessity of the existent is often intuitionally known, so also is the impossibility of the non-existent. Let a man transfer a ball from his right hand to his left. He will forthwith perceive the impossibility that the ball should be in his right hand and in his left at the same time. Such immediate cognitions of the impossible may be regarded as the starting-points for our inferential perceptions of non-existence.

We shall conclude our discussion of concomitant intuition with one general observation. It is that perceptions of this power accompany, and in a sense are consequent upon, not only those of sense-perception and consciousness, but those also of concomitant perception itself; in this way, doubtless, the mind builds up and perfects its presentative knowledge of things.

For example, we believe that the different members of the body are immediately perceived as in different parts of space, and therefore as external to one another. But how much more distinct and exact this knowledge becomes when one part of the body is made to touch another externally, as when a hand grasps an arm or is made to pass over one's forehead! Then each part is sensible of the other as external to it; *the boundaries of each become definitely known.*

In some such way as this, we suppose, the infant gradually forms a correct conception of his own body as a material substance of a definite size, shape, and consistency. Thus, too, the mind becomes prepared for the intelligent cognition of solid substances wholly external to the body; which cognition is not properly intuitive, but inferentially consequent upon the knowledge of our own bodies and their attributes.

CHAPTER XXXIX.

COMPOUND AND ACQUIRED PERCEPTION.

The understanding of compound, antecedent to that of acquired, perception

1. A SATISFACTORY understanding of acquired perception will be promoted if we notice, and distinguish from it, a form of cognition closely related to it, and which also should be considered for its own sake. We refer to that act of the intellect whereby the immediate perceptions of the same object by two or more different senses are combined into one perception, which combination is itself an act of intuitive and concomitant cognition.

This compounded perception differs from acquired perception, because there is no inference in it; the knowledge which it yields is presentationally given; but it is related to acquired perception, because it is the source whence the constructions of thought and the rules of inference employed in acquired perception are originally obtained.

These remarks may be illustrated from the experience of a boy born blind, whose eye was couched for cataract by an English surgeon. After he had somewhat gained the use of his sight, he could not call the cat and the dog by their right names, or tell which was the cat and which the dog. But, being easily able to recognize each by the sense of feeling, he caught the cat one day, and, shutting his eyes, passed his hands over her, so as to ascertain which animal he had been seeing. Then, setting her down, he said, "So, puss, I shall know you another time."

In this case two cognitions of the same object were intuitive and independent of one another, and their union resulted from an identification, also intuitive, of the object of the one with the object of the other; for the cat, as seen and as felt, presented relations of place and movement, of causation and simultaneity, which could not belong to two objects. The whole perception of the cat as an object with certain visible and certain tactual marks was an intuitive, though a compound, act of cognition.

At the same time it is evident that this immediate cognition prepared the mind making it for another perception in which a mere exercise of sight would enable the boy to supply the tactual character of the object, or in which the mere handling of the animal would enable him to ascribe to it a certain visible appearance; and *either of these perceptions would be properly an acquired one.* In like manner, should one perceive quicksilver to be a heavy fluid by dipping his hand in it, his identification of the quicksilver as seen with the quicksilver as felt would be intuitive; and this would be the basis of an inferential perception from sight alone of the heavy fluidity of that metal. Compound perception being thus a condition of acquired perception, a consideration of the former is our best introduction to a consideration of the latter.

First, then, we remark that compound perception is the beginning of any adequate knowledge of things external. *Till we unite into one whole the partial cognitions of a thing presented by the different senses, we can scarcely be said to have any comprehension of an external object.*

But things internal, which are the objects of consciousness, cannot be said to be known by a composition of perceptions, inasmuch as they are perceived by a cognition which is complex, but which is not compounded of cognitions from different sources.

Again, let us note that compound, in separation from acquired, perception is adequate for the complete cognition of comparatively few objects, and, like the more simple intuitions of which it is composed, is more easily illustrated by examples that are not wholly intuitional than by those which exhibit its own workings only. The latter are mostly of a subtile character, and are not matters of ordinary observation. This mode of procedure will not be objectionable provided the illustration, in its essential feature, shows a composition of intuitions. My perception of the apple which I hold in my hand may not be purely presentational. Nevertheless, the eye immediately perceives it as a circular colored object, in a certain direction from the centre of vision; the hand recognizes a round smooth object, of a certain weight and hardness; while the nose discerns it as an odoriferous, and the tongue as a sapid, substance. Moreover, the peculiar taste is experienced only when the object held in the hand touches the tongue; the odor becomes faint and is lost when it is removed from the nostrils; and when the hand moves hither and thither, the apple correspondingly changes its place and direction in the field of vision. These things are perceived intuitively; and in connection with them we learn, by intuition, that the object held in the hand, that which we see, that which we feel, that which we smell, and that which we taste, are all one and the same. But other particulars about this apple — for example, its solidity and its distance from the eye — may not be intuitively known.

The determinate knowledge of one's own body.

The purest exercise of compound perception, and the most important, takes place when the infantile mind first forms definite conceptions of the members of his own body, and of the body as a whole. This, doubtless, is a gradual accomplishment, and results principally from an attentive exercise of the senses of touch and sight, in connection with muscular and organic feelings. The latter present the body and each of its parts as extended, as solid, and as possessed of physical power; they give also an indistinct notion of the location of the parts with reference to one another. Then touch and sight give definiteness to the rudimental perceptions of internal feeling. Of the two, touch may be considered to operate first. When one little hand grasps in succession the fingers and the thumb, the palm and the wrist, of the other, the boundaries of each member and its size become definitely known. In the same way the features of the face and other parts of the body are touched and bounded. But this determination is greatly assisted by sight. While touch slowly traverses the surface of a limb, sight perceives it all at once; and the eye easily combines into one exact conception the explorations of the hand. In doing so, the superficial extent of portions of the body as ascertained by feeling, being immediately identified with the same as seen, any limb furnishes a standard for the measurement of the whole body. For this reason the estimation of size and distance by sight, even as regards one's own body, is only partially intuitive.

The cognition of the extra-organic world not purely intuitional.

In this connection let us notice an interesting discussion respecting our perception of externality. The externality of the different parts of the body, one to another, is immediately given in connection with muscular and organic sensations, and becomes more apparent as these sensations receive attention. This perception is greatly strengthened when the hand touches different parts of the body. Then two definitely bounded parts of the body are each immediately recognized as sentient and as solid, and as external to one another.

But the question has been raised whether any non-organic substance can be immediately known as external to the body, save by a deduction consequent upon the perception of the mutual externality of the parts of the organism itself.

It has been held that without this perception, as an antecedent condition, all external objects would be recognized only as affections of the mind. This position is an extreme one.

Hamilton suggests a simpler theory when he says: "The existence of an extra-organic world is apprehended . . . in the consciousness that our locomotive energy is resisted, and not resisted by aught in our organism itself." In other words, we perceive, at the surface of the body or of some limb, a power pressing upon us, or resisting our pressure, which power we know not to be exercised by ourselves or within our body.

But power is perceived only as possessed and exercised by a substance; therefore, when we say that we perceive an external power, this only partially expresses the fact that *a substance is perceived exercising the power.*

It may be allowed that this perception of the external agent is inferential, and is based on the knowledge of physical causes obtained from our bodily life, and especially from our own muscular efforts; in other words, that we infer an external cause of motion similar to those we have observed within. But *this ground of inference may be easily distinguished from a knowledge of the parts of the body as external to one another.* We therefore think that the external substance can be perceived without reference to the mutual externality of the parts of the body.

At the same time it is clear that this last-mentioned knowledge greatly contributes to render definite our perception of things external, and enables us to determine their character as we could not otherwise. When one hand is laid on the other, each not only distinguishes the other from itself, but also feels the pressure or the resistance of the other. But when an extra-organic substance presses either hand, the sensation is in the hand alone. This contrast *brings into relief* the externality of the extraneous substance.

The solidity of external objects inferred from comparison with our bodies.

Moreover, comparing the object as felt with the body as felt, we determine its solidity, size, and shape by the employment of rules obtained in the examination of our own limbs. This process, as regards solidity, or the space-filling property of matter, is well described by President Porter. "When a blind man," he says, "grasps his own arm or wrist, he knows certain muscular sensations as extended through, and posited in, the space within the opposite surfaces that he touches. If his wrist is withdrawn from the enclosing grasp, and an extra-corporeal object is inserted in its place, the adjustments of the grasping hand are the same as before; the dim knowledge of the space which these adjustments involve is also the same. . . . The wrist is known by direct perception as space-filling; the enclosing hand is a measure of the space enclosed. The same enclosing or grasping hand measures the surface of another body; but this body yields no muscular percepts involving extension. It occupies, however, precisely the space which the other filled. It is known, therefore, as space-filling, and as filling other space than that of the body."

This quotation sets forth the original perception of external solidity; the figure and size, direction and distance, of external objects are first perceived in a similar way. Indeed, all man's knowledge of the universe originates from cognitions respecting his own body.

Acquired perception defined and illustrated.

2. In discussing compound perception, we have insensibly entered upon the consideration of that mode of cognition for which this perception is the preparatory basis. Compound and acquired perception are so related that they are commonly discussed together as forming but one process. We have preferred to distinguish them, the latter being inference from past experience, and the former the composition of intuitions, or presentations.

We have now to remark that not every kind of inference from sense-cognitions can be called acquired perception.

In the first place, no inferred knowledge can claim this title unless it result from some impression which the object of it, the thing perceived, may make, more or less directly, on our nervous system, or sensorium. Hearing a clattering noise on the street, I may be said to perceive a wagon passing; but I cannot be said to perceive the driver, though I may conclude that there is some one driving, — for the wagon, but not the driver, is immediately related to the noise.

In the second place, the exercise of acquired perception excludes all formal or doubtful inferences. The action of this power being habitual and easy, quick and absolute, it can be distinguished from immediate intuition only by philosophical scrutiny. Therefore, should one, hearing such a noise as we have mentioned, be in doubt whether it were thunder, or cannonading, or the

"Car rattling o'er the stony street,"

his conviction regarding its origin would not be a perception, but only a probable inference.

These remarks may be illustrated by the story of a traveller. When Captain Head was traversing the wild Pampas of South America, "his guide one day suddenly stopped him, and, pointing high into air, cried out, 'A lion!' Surprised at such an exclamation, accompanied by such an act, he turned up his eyes, and with difficulty perceived, at an immeasurable height, a flight of condors soaring in circles in a particular spot. Beneath this spot, far out of sight of himself or guide, lay the carcass of a horse, and over that carcass, as the guide well knew, a lion, whom the condors were eying with envy from their airy height. The signal of the birds was to him what the sight of the lion alone would have been to the traveller, — a full assurance of its existence."

This judgment of the guide was apparently instinctive, and was the unconscious application of a rule founded on the past experience of himself and others. Yet it was not properly the sense-perception of a lion, because it did not arise from any impression made by that object on his organs of perception. Much less could the articulate process of reasoning in which the judgment of the guide first originated, and by means of which the traveller was enabled to accept the conclusion as correct, be considered a sense-perception. The movement of the condors indicated that some carcass lay far beneath them. As they kept circling aloft, it was evident that some beast was yet in possession of the prey. This could not be a dog or a jackal; the condors would have driven such animals back, or at least contended with them for a division of the food. There being only one kind of large carnivorous beast in that region, the conclusion followed that a lion was dining at a point beneath the condors. In this case neither the instinctive nor the analytic judgment was a sense-perception. Both alike were exercises of the rational faculty. But, had the traveller heard the roar of the lion, and so learnt of his existence, this would have exemplified acquired perception. In like manner, should one, smelling a flower in the dark, find it to be a rose, or, tasting a fruit, say that is a peach or an apple, or, feeling some goods, know them to be silk or cotton, these would be acts of the description now considered.

Belongs pre-eminently to sight.

Man's sphere of external cognition is amazingly increased by the development of that power of habitual and instinctive inference which we call acquired perception. Without this development our knowledge of the material universe would be replaced by a rude ignorance, and our control over the forces of Nature by an infantile helplessness.

Of all our senses, none has so remarkable a usefulness as that of sight, which, from the mere sensation of slender boundary lines and insignificant patches of color on the retina of the eye, enables us to perceive all objects, near and far, within the visible horizon, and even the distant heavenly bodies, so that the soul of man, employing this marvellous faculty, appears to make excursions whithersoever it pleases, and observes things remote as if they were near at hand. We believe that philosophers at the present time are generally agreed in their views concerning visual perception; but it has been through long discussion, and much experiment and observation, that they have reached definite conceptions as to the nature and methods of it.

The exceeding crudity of the views of the first English writers may be illustrated by a passage from Locke. He says: "The next thing to be considered is, How *bodies* produce ideas in us; and that is manifestly *by impulse*, the only way we can conceive bodies to operate in. If, then, external objects be not united to our minds when they produce ideas therein, and yet we perceive these original qualities in such of them as fall singly under our senses, it is evident that some motion must be thence continued by our nerves or animal spirits, by some parts of our bodies, to the brain or the seat of sensation, there to produce in our minds the particular ideas we have of them. And since the extension, figure, number, and motion of bodies of an observable bigness may be perceived at a distance by the sight, it is evident *some singly imperceptible bodies* must come from them to the eyes, and thereby convey to the brain some motion, which produces these ideas which we have of them in us."

Here Locke appears to regard the vision of distant objects, not as a judgment founded on experience, but as a conviction immediately produced or excited by the motion of singly imperceptible bodies.

Bishop Berkeley, in his "Theory of Vision," an admirable specimen of philosophical analysis, explained our perceptions of distance, shape, and size, as deductions from the sensations of colors by the eye; but while doing so, he adopted the extreme position that sight, of itself, gives a knowledge of color only, and that we do not from this source have any knowledge of extension in any of its dimensions. Subsequent discussions have corrected this error, and have resulted in a more tenable doctrine.

The immediate cognitions of the eye.

It is now held that the eye is immediately cognizant of superficial distance, size, place, and figure. This has been determined by the testimony of those who have suddenly acquired eyesight through a surgical operation, as was the case with a youth seventeen years of age, reported by Dr. Franz, of Leipsic. The experiments tried upon him militate against an opinion which Locke approves, — namely, that "a man born blind and now adult, and taught by his touch to distinguish between a cube and a sphere of the same metal, and nighly of the same bigness," having gained his sight, "could not by means of that sense, before he touched them, distinguish and tell which is the globe and which the cube." The young man distinguished cube and sphere by comparing their sensible appearances as projected on the plane of his vision, though he did not recognize them as solid bodies, but simply as two flat figures; for sight alone can distinguish a circle from a square, but not a disc from a globe.

When the eye of the young man was sufficiently restored, "a sheet of paper, on which two strong black lines had been drawn, — the one horizontal, the other vertical, — was placed before him at the distance of about three feet. He was now allowed to open the eye, and after attentive examination he called the lines by their right denominations. The outline, in black, of a square six inches in diameter, within which a circle had been drawn, and within the latter a triangle, was, after careful examination, recognized and correctly described by him. At the distance of three feet, and on a level with the eye, a solid cube and a sphere, each of four inches diameter, were placed before him. . . . After attentively examining these bodies he said he saw a quadrangular and a circular figure, and after some consideration he pronounced the one a square and the other a disc. His eye being then closed, the cube was taken away, and a disc of equal size substituted and placed next to the sphere. On again opening his eye he observed no difference in these objects, but regarded them both as discs. The solid cube was now placed in a somewhat oblique position before the eye, and close beside it a figure cut out of pasteboard, representing a plane outline prospect of the cube when in this position. Both objects he took to be something like flat quadrates.

"A pyramid placed before him with one of its sides towards his eye he saw as a plane triangle. This object was now turned a little, so as to present two of its sides to view, but rather more of one side than of the other. After considering and examining it for a long time he said that this was a very extraordinary figure; it was neither a triangle nor a quadrangle nor a circle: he had no idea of it, and could not describe it. 'In fact,' he said, 'I must give it up.' On concluding these experiments I asked him to describe the sensations the objects had produced; whereupon he said that immediately on opening his eye he had discovered a difference in the two objects — the cube and the sphere — placed before him, and perceived that they were not drawings; but that he had not been able to form from them the idea of a square and a disc until he had perceived a sensation of what he saw in the points of his fingers, as if he really touched the objects. When I gave the three bodies — the sphere, the cube, and the pyramid — into his hand, he was much surprised he had not recognized them as such by sight, as he was well acquainted with mathematical figures by his touch."

Our cognition of solid shapes.

From what we have now said, it seems evident that while a superficial or lateral figure is immediately recognized by sight, the shape of solid bodies is an original perception of touch, and becomes perceptible to sight only by a habit of inference. The sight cognition of solid figures, and of their distance in front, first begins when the mind is able to connect certain lines and shadings of color with the shape and place of near and tangible objects. Having thus gained a standard of judgment, the eye gradually extends its perceptions to objects more remote.

The perception of solid shape is well illustrated by Locke. Having remarked that "the ideas we receive by sensation are often, in grown people, altered by the judgment without our taking notice of it," he continues: "When we set before our eyes a round globe of any uniform color, — *e. g.*, gold, alabaster, or jet, — it is certain that the idea thereby imprinted in our mind is of a flat circle variously shadowed, with several degrees of light and brightness coming to our eyes. But we having by use been accustomed to perceive what kind of appearance convex bodies are wont to make in us, what alterations are made in the reflections of light by the difference of the sensible figures of bodies, the judgment presently, by an habitual custom, alters the appearances into their causes, so that, from that which is truly variety of shadow or color, collecting the figure, it makes it pass for a mark of figure, and frames to itself the perception of a convex figure and a uniform color, when the *idea* we receive from thence is only a plane variously colored, as is evident in painting." Those who have long been accustomed to perceive solid bodies by sight can scarcely believe that their ability to do this is wholly acquired; yet nothing seems more abundantly proved.

What Ruskin says is literally true: "The perception of solid form is entirely a matter of experience. We *see* nothing but *flat* colors; and it is only by a series of experiments that we find out that a stain of black or gray indicates the dark side of a solid substance, or that a faint hue indicates that the object in which it appears is far away. The whole technical power of painting depends on our recovery of what may be called the *innocence of the eye;* that is to say, of a sort of childish perception of these flat stains of color merely as such, without consciousness of what they signify, as a blind man would see them if suddenly gifted with sight."

CHAPTER XL.

THE FALLACIES OF SENSE.

The perception of direction and distance.

1. SOME claim that the eye can determine lines of direction radiating from itself, without any extraneous aid. This is doubtful; but, unquestionably, the visual perception of objects, as in given directions and as at a distance, is a very easy and early attainment. This cognition must take place at once, when it is found that the hand of the observer can come between his eye and the object seen. Some observations of Trinchinetti, an Italian surgeon, bear on this point. "He operated at the same time on two patients, brother and sister, aged eleven and ten years, respectively. The same day, having caused the boy to examine an orange, he placed it about one metre from him, and bade him try to take it. The boy brought his hand close to his eye (*quasi a contatto del suo occhio*), and, closing his fist, found it empty, to his great surprise. He then tried again a few inches from his eye, and at last, in this tentative way, succeeded in taking the orange. When the same experiment was tried with the girl, she also at first attempted to grasp the orange with her hand very near the eye (*colla mano assai vicina all' occhio*); then, perceiving her error, stretched out her forefinger, and pushed it in a straight line slowly till she reached the object." Trinchinetti "regarded these observations as indicating a belief that visible objects were in actual contact with the eye." So, also, the boy born blind, on whom Cheselden operated, said that objects at first seemed "to touch his eyes, as what he felt did his skin."

A difficulty considered. A. Smith.

Dr. Adam Smith, in his "Essay on the Senses," notices an objection to the doctrine now taught. This objection is based on the observation of the lower animals, many of which, from the very day of their birth, possess a good apprehension of distance and direction. "The hen," he says, "never feeds her young by dropping the food into their bills, as the linnet and the thrush feed theirs. Almost as soon as her chickens are hatched she does not feed them, but carries them to the field to feed, where they walk about at their ease, it would seem, and appear to have the most distinct perception of all the tangible objects which surround them. We may often see them, accordingly, by the straightest road, run to and pick up any little grains which she shows them, even at the distance of several yards; and they no sooner come into the light than they seem to understand this language of vision as well as they ever do afterwards. The young of the partridge and the grouse seem to have, at the same early period, the most distinct perceptions of the same kind. The young partridge, almost as soon as it comes from the shell, runs about among long grass and corn, the young grouse among long heath; and would both most essentially hurt themselves if they had not the most acute as well as distinct perception of the tangible objects which not only surround them, but press upon them on all sides.

This is the case, too, with the young of the goose, of the duck, and, so far as I have been able to observe, with the greater part of those birds which make their nests upon the ground."

Dr. Smith meets the difficulty presented by such facts, by claiming that instinct is given to the lower animals on account of the necessity of their condition; that man, being cared for in helpless infancy by his mother or nurse, has no need of any such faculty; and that, therefore, human beings are allowed to await the required development of their powers. But he also thinks it likely that infants have an instinctive perception of size and distance, though to a very limited degree. "Children," he says, "appear at so very early a period to know the distance, the shape, and the magnitude of the different tangible objects which are presented, that I am disposed to believe that even they may have some instinctive perception of this kind, though possibly in a much weaker degree than the greater part of other animals."

For ourselves, we admit the existence of instinct, — that is, of a tendency and power, given to animals by the Creator, to seek some rational or necessary end without having that end in view; doubtless some immediate pleasure is attached to instinctive activity, and leads to its performance; but we are not inclined to ascribe to instinct everything that animals may do. Moreover, in the present case, we think it not incredible that the intelligence of such actions as those adduced may have originated in a *very short experience.* We have seen chickens only one day old, which a little girl, our Bessie, had taken from the mother and fed, refuse to follow the mother, while they did follow Bessie about the yard. They no sooner had left the shell than they exhibited this power of forming a habit of judgment respecting the source of care and food.

We assume that cognitions of space and position arise in connection with muscular, organic, and tactual sensations, and that a power of thinking involving these cognitions is developed before any exercise of sight takes place. Probably, when the eyes are first opened, objects are seen as on a surface close to the organ; but when the young animal moves its head, and touches near objects with its mouth or beak, then things are discovered not to be contiguous to the eye, but to occupy stationary positions in space. The lateral and vertical movements of the head show the object to be stationary, and the forward motion shows that some space must be traversed before contact. At the same time, also, the direction of objects is determined; they are instantly located on lines connecting them with the centre of vision. Nothing further is now requisite save some serviceable measure of short distances; and should we hazard the conjecture that objects within reach of the young animal possess a certain degree of visible distinctness, or cause a certain convergence of the optic axes, or in some other way peculiarly affect the organ of vision, this would present a rule of judgment which could be learned and applied at once. The determination of greater distances might involve a further process and somewhat more experience.

It is also to be remembered that the bodies of the lower animals at birth possess a greater development than that which is exhibited by the new-born infant, and are more capable of that automatic action which, though purely nervous and physical, is complementary and coadjutant to the intentional guidance of volition. The co-ordination of the motion of limbs of birds and beasts in walking, running, and flying is very much automatic; and so, also, are some tendencies to act under the stimulus of any distinct impression made on the organs of sense. The foregoing considerations do not take away the necessity for instinct, but justify a greater limitation than is usually given to the sphere in which that power is exercised. But whether the sight-perceptions of animals involve instinct or not, there is little need of accounting for human vision otherwise than as the acquisition of experience.

Perceptions of size and distance.

We have now sufficiently considered the visual perception of the direction of objects and of their solid shape; but something must be added respecting our estimations of size and distance. As already stated, our original or primordial perceptions of these things arise from internal sensations acting in connection with the sense of touch. Having in this way ascertained the length of one's foot or arm, and, in general, the size of our different bodily members, we use these determinations as standards for the measurement of other things.

The original "foot" of length was doubtless taken from the foot of some man of authority, just as the standard yard-stick kept in the Tower of London is said to have measured the length of the right arm of a king of England. A cubit, as the term indicates, was originally the length of the fore-arm from the point of the elbow to the extremity of the fingers. After such standards of length had been determined, others were easily obtained which are based on the movement of our limbs, as known through the muscular sense. Every full step of a medium-sized man traverses a distance of three feet or thereabouts. Hence the original mile was *mille passuum;* hence, too, the passage of time, as connected with the regular continuance of bodily motions, is employed to indicate distance. The traveller in Europe is often told that one place is a given number of hours distant from another, each hour being equivalent to a league of three miles, — that is, to the length of road ordinarily passed over by a pedestrian in an hour.

The extent to which such muscular measures of space can be employed may be illustrated by the case of a Mr. John Metcalf, otherwise called "Blind Jack," mentioned in the memoirs of the Manchester Philosophical Society. "He became blind at an early period, but notwithstanding followed the profession of a wagoner, and occasionally of a guide in intricate roads during the night, or when the tracks were covered with snow. At length he became a projector and surveyor of highways in difficult and mountainous districts, — an employment for which one would naturally suppose a blind man to be but indifferently qualified. But he was found to answer all the expectations of his employers; and most of the roads over the peak in Derbyshire, in England, were altered by his directions. Says the person who gives this account of Blind Jack: 'I have several times met this man, with the assistance of a long staff, traversing the roads, ascending precipices, exploring valleys, and investigating their several extents, forms, and situations, so as to answer his designs in the best manner.'"

In order to communicate the faculty of measuring magnitudes and distances from the locomotive, or muscular, sense to the eye, there is need only that a course traversed by the feet should be submitted to the sight. Then another course of similar length would affect one's sight in a similar manner. But the more frequently such comparisons are made and tested, the more thoroughly is the habit of judgment formed. Thus our acquired perception of magnitude and distance results directly from a comparison of the sensations of sight with those by which these attributes are more directly measured. It does not involve any knowledge of the nature of the eye or of the operations of this organ in receiving, transmitting, directing, and concentrating rays of light.

Rules of visual judgment. Nevertheless, scientific investigations have shown how the eye is affected by variations in magnitude and distance; and in so doing, they have revealed the causes of those ocular sensations which the mind interprets.

First of all, it is ascertained that *when an object is near at hand, and in proportion to its nearness, the optic axes* — that is, the lines passing through the pupil and the centre of each eye — *are made to converge*, so as to admit light from the object, in the most perfect way, upon the retina. This convergence is effected by muscles connected with the eye, whose action is indicated by a sensation. Hence one can more quickly and exactly seize a pin or a pea suspended in the air at a little distance, when both of his eyes are open, than he can when one eye is shut. The visual *size* of objects close at hand is of course at first immediately interpreted by its identification with that of objects felt.

Again, it is known that, as a rule, *nearer objects make a more distinct impression on the retina than those which are remote.* Hence one looking from some distance across a ravine or river can easily distinguish the foliage on the side next to him from that which is visible on the other. Hence, too, in such countries as Colorado, where the air is remarkably clear, mountains many miles distant appear to the newcomer only a short way off, while those who have been accustomed to such a transparent atmosphere find themselves adding unduly to the space-separations of a more hazy region.

In the next place, *the intervention of various objects assists our judgments of distance, while the presence of adjoining objects aids our estimate of size.* The length of a procession is better perceived than the distance of a single object, — we make allowance for all the intervening spaces that are occupied or marked; and the size of an elephant at a distance, or even near by, is better appreciated if it can be immediately compared with that of a man or a horse. The sun and moon and other heavenly bodies seem to us both near and small, because the eye can neither compare them with any known magnitudes, nor measure the distance between them and our planet. They are granted only such size and distance as would *ordinarily* be indicated by their appearance.

But *the most important law governing our perceptions of distance and magnitude is founded on the fact that rays of light travel in right lines from the object to the eye.* This being the case, the apparent size of any object — that is, the space which it occupies in the field of vision — varies inversely as the square of the distance from the eye. This law enables the mind to estimate distance when magnitude is known, and magnitude when distance is known. A man standing at the distance of two rods from the eye occupies one half the length, and one fourth the superficial extent, in the field of vision, that the same man occupies at the distance of only one rod. If the mind knows the visual size of an object at the distance of one rod, and perceives the same object as having only one fourth that size, it locates the object at the distance of two rods. On the other hand, if it knows some object of similar appearance to be only one rod away, while its visual size is no larger than that presented by the known object at two rods, the object now seen, though similar to that previously observed, is concluded to be only one fourth as large. Of course no formal calculations of size and distance take place in the use of the foregoing rules; yet it is wonderful with what accuracy and ease our ordinary judgments of sight are made.

The fallacies of sense. They are inferential.

2. We must not conclude the discussion now in hand without remarking that the so-called "fallacies of sense," which really are mistaken inferences from the presentations of sense, take place only in connection with acquired perception. The immediate and original cognitions of the mind, whether of sense or consciousness or concomitant perception, are reliable; they present realities; in them no mistake is possible. But errors may occur in the inferences we make from them.

Moreover, our liability to error first arises in connection with the exercise of that very power of judgment whereby we are enabled to infer what is true. It does not originate in the associative tendency of thought. This merely attaches conceptions to one another, without any necessary reference to their logical relations. He who says that truth or falsehood, or our belief in either, is the result of association, misses the mark sadly. Mistakes become possible for us when, by a power of judgment, we begin to unite things in the relation of antecedent and consequent.

This relation, in some cases, is perceived to exist by an absolute necessity, and then rules are formed which admit of no exceptions; in other cases it is not perceived to be absolute, but only supposed or accepted with greater or less probability and confidence; and the rules arising in such cases may admit of exception. By far the greater part of human judgments are formed in this way; for absolute or perfect truth is sometimes unattainable by the mind, and sometimes, though attainable, is beyond the practical aims and necessities which shape our ordinary modes of thought and determine the degree of their development. This power of forming imperfect rules is a most necessary and useful attribute; for it yields a less perfect apprehension when absolute knowledge may be undesired or unattainable. But it indicates a limitation in the cognitive faculties of the being using it, and it results in a liability to error. Mistakes from this source are specially likely to occur whenever any imperfect rule of judgment is applied in circumstances differing from those of its first formation and original use.

We allow, also, that association and habit, which contribute greatly to the ease and rapidity with which our judgments are formed, increase that liability to error which we have just mentioned. The force of habit hurries the mind into the adoption of conclusions, as it were instinctively, which the circumstances do not warrant. In this way we sometimes find ourselves making judgments which we know to be wrong, and which we immediately correct.

These remarks may be illustrated from every mode of acquired perception. Should one cross his fingers, — say the second and third fingers, — and then move the end of a pencil back and forth between their extremities, he will find some effort necessary to disabuse his mind of the feeling that two pencils are employed in the titillation. The reason is that the sensations now caused by one instrument require the use of two when the fingers are in their ordinary positions. This instance suggests a fact well known to surgeons, and cited in Müller's "Physiology:" "When, in the restoration of a nose, a flap of skin is turned down from the forehead, and made to unite with the stump of the nose, the new nose thus formed has, as long as the isthmus of skin by which it maintains its original connections remains undivided, the same sensations as if it were still on the forehead; in other words, when the nose is touched, the patient feels the impression on the forehead." Here evidently the object felt is referred to the accustomed place of the sensation.

In the same way we account for the phenomenon that the sensations of an amputated limb are referred to the lost extremities. Müller gives the following instances: "A student named Schmidts, from Aix, had his arm amputated above the elbow thirteen years ago; he has never ceased to have sensations as if in his fingers. I applied pressure to the nerves in the stump; and M. Schmidts immediately felt the whole arm, even the fingers, as if asleep. . . . A toll-keeper in the neighborhood of Halle, whose right arm had been shattered by a cannon ball in battle, above the elbow, twenty years ago, and afterwards amputated, has still, in 1833, at the time of changes in the weather, distinct rheumatic pains, which seem to him to exist in the whole arm; and though removed long ago, the lost part is at those times felt as if sensible to the draughts of air."

The explanation of these and similar experiences by President Porter seems sufficient. "A man," he says, "who has no foot, will feel pain in the foot. Why? Because he experiences precisely the same sensations which he suffered when he had the foot, and knew it was the seat of pain. But if he had never had a foot, he would never have assigned pain to it; for he would never have had the means, by eye or hand, or muscular sensations, of connecting these sensations with it." President McCosh, on the contrary, inclines to believe that the wrong judgment, if it resulted from past experience, would more easily give way to the teachings of a subsequent experience, and concedes that the physiological fact reported by Professor Valentin, that "individuals who are the subjects of congenital imperfection, or absence of the extremities, have, nevertheless, the internal sensations of such limbs in their perfect state," necessitates the admission of an instinctive or immediate judgment.

We rather think that the class of phenomena in question may be accounted for by an acquired perception strengthened by a strong association. We see no necessity to suppose an original or immediate judgment, though doubtless there may be an inherited tendency in our nature which, in the cases referred to, intensifies the operation of the associative power. With respect to the testimony of persons with amputated limbs, it is to be remarked, first, that it is not uniform, some saying that their sensations do not long remain fallacious, while others assert that they do; secondly, this testimony does not mention muscular sensations, in connection with which our perceptions of place are tolerably determinate, but vital and organic sensations, regarding which our original localizing judgments are indefinite; therefore, thirdly, we may allow the feelings of the shortened limb to be similar to those of the same member while perfect, holding at the same time that such feelings do not of themselves definitely mark position; and, fourthly, the positive associations of early life may be supposed to have in them a power of continuance compared with which that of any subsequent negative experience must be very feeble.

The congenital cases reported by Dr. Valentin may be satisfactorily explained. Let us take the following: "A girl aged nineteen years, in whom the metacarpal bones of the left hand were very short, and all the bones of the phalanges absent, — a row of imperfectly organized wart-like projections representing the fingers, — assured M. Valentin that she had constantly the internal sensation of a palm of the hand and five fingers on the left side as perfectly as on the right. When a ligature was placed around the stump, she had the sensation of 'formication' in the hand and fingers, and pressure on the ulnar nerve gave rise to the ordinary feeling of the third, fourth, and fifth fingers being asleep, although these fingers did not exist. The examination of three other cases gave the same results."

Here it will be noticed that the girl speaks of the "internal" sensations in her left hand as being, notwithstanding her deformity, similar to those in her right. We can see nothing very extraordinary in this if it be allowed that each hand was furnished with a similar set of nerves similarly distributed; nor is it unnatural to suppose that conceptions associated with sensations in the stronger hand, and logically connected with them, should be recalled by similar sensations in the other and be the means of momentary error. But a person *born destitute of both hands* could not, we think, have the interpretations of feeling which properly attach themselves to those members.

In respect to the errors of vision and of the external senses generally, there is — or, at least, need be — no serious dispute. No philosopher claims that the oar bent in the water, or the landscape made yellow by the jaundiced eye, or the ringing in one's ears produced by large doses of quinine, or any of the extraordinary sensations of a diseased organ, are proofs that our senses are deceitful. Our immediate cognitions are always reliable, even when our inferences from them may be wrong.

The errors of sense easily corrected.

Moreover, our acquired perceptions, like other inferences, admit of critical analysis, and can for the most part be tested by their consistency with each other, and by their logical connection and agreement with accompanying perceptions that are more immediate. In this way, whenever any doubt arises, our perception can be confirmed or modified or rejected after a sufficient investigation. *Even acquired perception, therefore, is most reliable, and is regarded by all men as a proper and satisfactory source of knowledge.*

The ease with which the mind detects and corrects errors in its inferential cognitions is evident from the fact that *we are seldom really deceived by such errors*, unless it be for a short time, but only amused, and interested to know their cause. Illustrations of this statement occur in the daily experience of us all; the following instances are remarkable only because recorded by scientific men.

"I remember once," says Dr. Abercrombie, "having occasion to pass along Ludgate Hill, when the great door of St. Paul's was open and several persons were standing in it. They appeared to be very little children, but, on coming up to them, were found to be full-grown persons. In the mental process which here took place, the door had been assumed as a known magnitude, and the other objects judged of by it. Had I attended to the door being much larger than any door that one is in the habit of seeing, the mind would have made allowance for the apparent size of the persons; on the other hand, had these been known to be full-grown persons, a judgment would have been formed of the size of the door."

A writer in the "Edinburgh Encyclopædia" mentions a more complicated case of optical illusion than the foregoing: "In examining a dioramic representation of the inside of Rochester Cathedral, which produced the finest effect from the entire exclusion of all extraneous light and of all objects except those on the picture itself, he was struck with an appearance of distortion in the perspective, which he ascribed to the canvas not hanging vertically. Upon mentioning this to the gentleman who exhibited the picture, he offered to walk in front of it and strike its surface with the palm of his hand, to show that the canvas was freely suspended. Upon doing this, a very remarkable deception, or illusion rather, took place. As his hand passed along, it gradually became larger and larger till it reached the middle, when it became enormously large. It then diminished till it reached the other end of the canvas." Here the eye was deceived, first, as to the distance of the painted object, then as to the place of the hand which appeared to touch the object, and finally as to the size of the hand. In this case, as in the other, the observer was not long deceived, but was able immediately to correct his false conclusions.

CHAPTER XLI.

MEMORY.

1. THE reproductive, or representative, phase of mental activity is characterized by the predominant exercise of the reproductive power. It comprises those operations in which, for the purposes of contemplation, the mind recalls and elaborates

thought or knowledge already acquired. This phase of activity exhibits itself in two principal forms, — that is, as *memory*, and as *phantasy*, or *imagination*. Hence we speak of the memory and the phantasy as the reproductive faculties. The first of these is distinguished by the knowledge and belief with which its representations are attended; the other by a kind of synthetic judgment whereby constructions of thought are formed, sometimes with little design or effort, at other times with great skill and with well-considered aims.

Memory is an immediate knowledge of the past.

The phenomena presented by memory are more evidently reproductive of the past than those of phantasy; for this reason we shall attend first to the former power. Sir William Hamilton finds fault with Dr. Reid for saying, "*It is by memory that we have an immediate knowledge of the past.*" Sir William says: "An immediate knowledge of the past is a contradiction. For we can only know a thing immediately if we know it in itself, or as existing; but what is past cannot be known in itself, for it is non-existent." Certainly, if immediate knowledge imply that the thing known exists at the time of the knowledge, and is immediately present to the percipient soul, remembrance is not immediate knowledge. But Reid never meant to teach anything so absurd as this. By immediate knowledge he signifies that which is not ratiocinative, or in any way inferential. He meant to teach that a thing distinctly remembered is known simply because it is remembered — or rather, simply in being remembered — and by reason of the constitution of the mind.

We accept this doctrine as correct. We believe that memory, in its essential work, simply reproduces past perceptions, — or rather, the knowledge gained in such perceptions, — this reproduction being accompanied by the attribution of new temporal relations to the fact recalled. If this be so, then memory, in an important sense, is an immediate knowledge of the past. As in original sense-perception we do not first perceive an idea of the object, and then in some way become convinced that this idea represents a reality, but, on the contrary, immediately perceive the object itself as in relation to our sentient spirit, so memory immediately and directly reproduces from former knowledge both the conception and the conviction which are included in that knowledge. There is no process, but a simple reproduction of the original conception and conviction, together with a perception of the lapse of time.

According to Hamilton's doctrine of memory, the conception of a past fact is not immediately accompanied with conviction, but may be immediately identified with a past cognition, and then, because our cognitive conception agreed with fact, we conclude that our recollective conception agrees also with the same fact. We reason thus: My present thought corresponds exactly with my previous thought; but my previous thought was cognitive, and corresponded with fact, and was true: therefore my present thought is true.

This view can scarcely be called absurd. It is especially plausible as an account of our remembrance of things external. It assumes two ultimate and inexplicable data: first, the conviction that a present corresponds with a past thought; and, secondly, the conviction that the past thought was cognitive, this latter datum being nothing else than the immediate *remembrance* of the past cognition. From these assumptions the past existence of the thing thought of is deduced.

But a little reflection discovers the weakness of this theory.

In the first place, it is *self-destructive* in assuming that *we can immediately recall the knowledge, gained by consciousness, of past conceptions and convictions.* If the knowledge of consciousness may be recalled and relied upon, why may we not do the same with the knowledge gained by sense-perception, — in short, with every kind of immediate knowledge? Reid's teaching makes no greater assumption than the theory now considered, and has the advantage of superior simplicity, which is a great advantage in philosophy.

In the next place, this theory is yet more self-destructive *in assuming the memory of cognitions as such.* Because the memory or knowledge of a past cognition, as the basis of a new knowledge of fact, involves that the fact is *already known*, and need not be learned in this way. We cannot know that we knew any particular thing without therein already knowing that thing.

Finally, we say that our daily consciousness does not favor this doctrine, but that of immediate memory. Never, in any perfect remembrance, do we find ourselves first referring to our past cognition, and then making inferences from it; on the contrary, we immediately reproduce our cognitions, whether objective or subjective, and therein immediately remember the objects of these cognitions.

The memory of a fact involves the remembrance of its cognition.

But while the remembrance of one's self as cognitive is not the *basis* of belief in things formerly perceived, a reference to one's self as previously percipient enters into, and helps to constitute, every act of remembrance. This, at least, is true of memory as commonly conceived of. When a man says that he remembers something, we understand that he himself has perceived that which he remembers. If he tells what he has heard from some one else, he remembers hearing it, but not the thing itself. If he tells that of which he is sure, yet is not now certain whether he originally perceived it himself, or learned it from others, or inferred it from some sign, we do not call his certainty or knowledge remembrance; it is merely a recalled knowledge.

This re-knowing is of the same essential nature with memory, and might be included under memory, provided the term were used in a wide philosophical sense. But that might lead to confusion. Besides, however confident one might himself be of some fact learned, he knows not how, his testimony regarding it could not avail with others so much as if he knew whence he had obtained his knowledge. Nay, perhaps he himself could not be absolutely sure of it. For this reason we commonly wish to know concerning any reproduced conviction whether it first originated from inference or from testimony or from observation; in the latter case only, we call it memory.

Almost every other circumstance connected with a past event or fact, except that it was personally observed, may be forgotten, while the character of memory remains. One may be confident that he has heard another making a certain declaration, but may be entirely unable to say in what place or at what time or in what company; he may even forget how he himself was affected by the declaration; but he must recollect that he himself heard it, or there is no remembrance.

Memory is not clearness of conception.

In memory the two primary powers of mind — thought and belief — are always exercised together; and *nothing is more necessary to a right understanding of this faculty than that we should bear in mind the distinction between these powers.* The want of a right apprehension of this distinction has rendered possible two related forms of error: first, that which regards memory as merely a clear and vivid exercise of reproductive thought; and, secondly, that which explains memory as an energetic kind of thought, resulting from an unimpaired or reinforced condition of the suggestive power.

The first of these views is involved in Mr. Locke's account of memory, though rather from his carelessness and want of precision than from any positive adoption of the error. Failing to distinguish between ideas and cognitions, Locke makes perception the faculty by which ideas are first received, and memory the faculty by which they are retained and revived. The same doctrine is taught by those who describe remembrance as a distinct and life-like conception of something past. Vividness of conception should not be confounded with confidence of conviction. The former may often accompany the latter, and for this reason may be mentioned as suggestive of it. But the two are not inseparable, and even when conjoined, may be distinguished. Our conception of a well-told tale and our belief in its truth are different things. Were it not so, there would be no difference between distinct memory and distinct imagination.

Memory is not strongly reproduced thought or feeling.

The second error, mentioned above, is held by those philosophers who account for all the beliefs and convictions of the mind on the principle of the association of ideas. According to them, we have, first, sensations; then reproduced sensations, or ideas, of different kinds; then association of ideas: that is all. This doctrine confounds sensation with thought, and thought with knowledge, and makes all knowledge renewed and refined sensations. It is shallow and inadequate to the highest degree. It signally fails in attempting to account for memory. Admitting all its assumptions, it is impossible to see how any conception of things as existing in past time — much more, how any conviction as to their past reality — is nothing more than a strongly reproduced feeling.

A sensation of pain or uneasiness to-day, though it be reinforced by some influence from the pain of yesterday, has in it no reference to yesterday, much less any conviction that such reference is correct. *These things are an addition to the present experience, however that may have been produced or compounded.* In short, associationalism cannot explain the simplest exercise of remembrance. This fact, in the course of discussion, became so evident to Mr. J. S. Mill that he candidly admitted memory to be an ultimate ground of belief. In opposition to his own teachings, he said: "Our belief in the veracity of memory is evidently ultimate; no reason can be given for it which does not presuppose the belief, and assume it to be well grounded."

Memory admits of degrees. Why?

Memory, in its twofold character as the reproduction of both thought and belief, admits of excellence and of imperfection. An absolute recollection of the past, in which all things submitted to one's observation should be recalled in all their details and with the full assurance of sight, could belong only to an ideal memory. A less complete exercise of the faculty passes for perfection with human beings. In general, when we speak of a perfect remembrance, we mean one which retains all those particulars of some scene or transaction which may have been specially noticed, and which includes a full assurance of belief respecting them; and a memory is imperfect so far as it differs from such a standard, in either respect.

While these two modes of excellence often accompany each other, they are also often separated. One witness may dimly recall the circumstances of a transaction which he remembers with absolute assurance; and another, of livelier imagination, may have distinct conceptions of particulars, while he would not like to swear that everything happened just according to his description.

Differences of ability are noticeable also in the same man at different times. The causes controlling these differences are, in the main, the same as those which govern the acquisition and the revival of our ideas. Hence, although every recalled belief, like every recalled idea, arises in the mind directly from the action of a reproductive power, we often can explain how one remembrance has arisen rather than another, and how one remembrance is more or less vivid, or confident, than another. What has been interesting, what has been observed carefully, what has occurred recently, what has been witnessed alone and without distraction and while one is in good health and vigor, will be recalled with special ease and confidence.

The relations of memory to reason or judgment. 1. An imperfect memory may be confirmed or disannulled.

2. Hitherto we have insisted upon the negative relation of judgment to memory, and have taught that, in remembering a thing, we believe it, with greater or less assurance, simply because we remember it. It is, however, true that the memory of human beings is not exercised apart from their reason or judgment, but continually in conjunction with the latter faculty; and the relations arising from this fact are very important.

Judgment may confirm or disannul remembrances; it may scrutinize and test the action of memory; it may intermingle and combine its own inferences with remembered facts; and it may control and direct the mind in the effort to remember things forgotten. A great influence is exerted in these several ways.

First, judgment confirms or disannuls remembrances. This happens only when the alleged fact is not remembered perfectly. In that case, to terminate doubt, the fact supposed to be remembered may be regarded in its external relations, and we may find good reason to believe that such an event must or must not have taken place. For instance, we may find that certain necessary consequences of it are or are not visible. If one during the night-time had seen a great fire at a short distance, and on the next morning were not sure that he had not been dreaming, his memory would be confirmed if he should find the blackened and smoking remains of some large building in the neighborhood to which his recollection pointed. If no such remains could be found, he would conclude that he had been only dreaming.

2. Reason may scrutinize and test the action of memory.

In the next place, judgment may scrutinize the action of memory and the degree of its reliability. This is done whenever a remembrance is intentionally and deliberately repeated, and so subjected to the notice of a reflective and attentive consciousness. Under such conditions we may become sure that our conviction really arises from memory, and is not a delusion of fear or hope or passion or interest; and we can determine with what amount of confidence we really remember a thing, whether with full assurance or with doubt and hesitation. Then, also, we may compare our recollection with other recollections and beliefs, and may inquire whether there be any likelihood of our having erroneously combined the elements of our acquired knowledge.

Let one remember a portrait on the wall of a certain drawing-room, and have the doubtful impression that the picture which he saw was a Madonna. He can now ask whether his idea of the Madonna may not have been obtained from some other picture that he has seen elsewhere, and wrongly substituted in his present recollection for that of Beatrice, or some other lady. If he have seen no such picture in similar surroundings, his recollection is probably a correct one.

A remembrance is also confirmed or rejected by testing its power to excite other remembrances. When our attention is fixed on a fact, the redintegrative tendency operates to recall particulars connected with it, so that a little study may bring before us all the prominent features of some scene or transaction in which we have been once interested. In this way circumstances naturally connected with the point regarding which we are in doubt are frequently brought to mind; whereas, if no effort can recall additional or confirmatory circumstances, there is increased reason to distrust the recollection.

For this cause witnesses in courts of law are often required to confirm their testimony concerning some fact by relating, so far as they may, the time, place, and circumstances of its occurrence; and, in general, testimony is the more acceptable, the more detailed and circumstantial it may be.

3. In the estimation of time judgment combines with memory. How such estimates originate.

In the third place, judgment intermingles and combines its own beliefs with those furnished immediately by memory, and thus performs an important function. Next to the doctrine that memory is an original and immediate source of knowledge, none other is so indispensable to a satisfactory understanding of this faculty as the doctrine that memory has a development, and that, in addition to the essential power of the reproduction of old cognitions and beliefs, there is an acquired memory, which is related to the original and simple power somewhat as original is to acquired perception. *This developed or acquired memory is that which we commonly exercise, is what we commonly call memory, and, while including an immediate knowledge, contains a considerable admixture of what is rational and logical.* The mystery and difficulty which many an able thinker has encountered, in connection with the philosophy of remembrance, have arisen from his failure to trace the workings of the recollective faculty to their first beginnings, and to comprehend the duplex character of them as cognitions.

The initial exercise of memory takes place in immediate connection with the perception of things as existing in time, and is scarcely distinguishable from the operation of the perceptive power. One can perceive time only as passing; the very cognition of things as existing in the present must be accompanied by the knowledge of them as existing in the immediate past. These two modes of cognition are inseparably connected, and together form what may be denominated a perception of the continued present. In this perception we gain those conceptions of time and of the relations of time, which are involved in every act of memory. Here, too, the mind obtains those *measures of duration* which it afterwards applies.

The first memories of the infant are very imperfect. Its powers of attention and discrimination are feeble; and its interest is wholly occupied with the immediate present. Even after the mind has commenced to remember things with some distinctness, and to realize how memory differs from both perception and imagination, our judgment as to the time of past events remains indefinite. Any one acquainted with little children knows their incapacity to tell the time of occurrences which they remember. The infant probably begins his measurement of duration while noticing short sensible events which succeed each other with regularity. The footsteps of the nurse, her monotonous song, the rocking of the cradle, or the successive breathings of the child itself mark the passing moments. The remembrance of a number of such events together — of as many steps as the nurse takes in crossing the room, of the syllables composing one stanza of her song, of a succession of cradle rockings, or of a number of excited breathings after being laid down from the nurse's arms — would yield a further measurement of time, and prepare for greater judgments.

Before many years our earlier measurement of duration is succeeded by observation of the time consumed by regular artificial movements; and so seconds, minutes, hours — marked by the ticking of pendulums, or the movements of hands over the face of a timepiece, or the creeping of the shadow on the dial, or the falling of sand through the hour-glass — are learned and accepted as definite portions of duration. Thus, by different immediate judgments, we determine the duration of such regular processes, natural and artificial, as submit themselves to our continuous attention. After that we use such phenomena as standards, whereby we may determine with accuracy the duration of other things.

But, the measurement of the time of any standard event being once perfected, the time occupied by its subsequent recurrence may be recognized inferentially, and may be inferentially applied to any other event contemporaneous with it. Having once attained to the conception of a day as that length of time which is occupied by the diurnal revolution of the earth, there is no need that we should again measure the successive portions of the day. We may sleep during part of the twenty-four hours, and during the remaining part may give no special attention to the passage of time; yet we can know that one day only has passed, if there have been only one alternation of darkness and light.

In short, our determination of the time occupied by past events, and of the time which may have transpired since their occurrence, is mostly made by means of inferences in which length of time, as measured by reference to some regular and well-known phenomenon, is assigned to the transactions that we have more immediately in view. When we remember that such or such an event happened a day, or a week, or a year ago, this remembrance, like the perception of distance by sight, involves the use of rules which have been gained in a past experience.

4. Judgment guides the effort to recollect.

Fourthly, and finally, judgment controls and assists memory in the effort to recall things forgotten. The reproduction of belief, as well as the reproduction of thought, is to a certain extent subject to the influence of the will; and with reference to this fact, memory has been divided into *the spontaneous* and *the intentional.*

We cannot recall what is not connected with our present thought, nor even that of which we do not already have some conception. But it is often possible to recall the forgotten particulars of some scene or transaction which we partially remember.

The intellectual effort in which this end is accomplished is named *recollection*, because it is a collecting again of things into one's conscious knowledge. In this process the mind appeals to the laws of the reproduction of thought. We dwell on the partial remembrance and wait, expecting a redintegration. If this do not take place soon, then we try one form of completion after another till at last some happy conjecture, nearer the truth than the rest, recalls the particulars desired; for any past cognition is reproduced with special ease whenever our present thought may be similar to it. Having forgotten the name of some boy, we have not, of course, forgotten that he has a name; therefore we try first one name and then another, till at last, striking the right name, or one similar to it, recollection takes place.

Such is a very frequent method of intentional memory. *But often we seek the forgotten, not through the similar merely, but through that also which may have been in any way associated, in past cognition, with the object of our search.* For instance, if one were desirous of recalling some remarkable saying of another's, he might dwell on the occasion of the utterance, on the temper and aims which animated the speaker, on the company which he addressed, and on the general character of the discourse, and might hope that the remark might be suggested through its connection with some of these things; for any recollection tends to revive that which has previously been associated with the fact which we recollect.

CHAPTER XLII.

THE CULTIVATION OF MEMORY.

Circumstantial and methodical memories.

1. THERE is no more faithful index of a man's intellectual character than the style which his memory spontaneously assumes. Some persons naturally have a penetrating strength of mind, which immediately lays hold of the important particulars of some transaction, neglecting the rest, which talent is for the most part developed by use and education; other persons are greatly deficient in this respect. Accordingly, some memories are merely receptive; the particulars of any event or scene are recalled by them indiscriminately, and are mentioned in the evident, obvious relations of time and place: while other memories, as if guided by an instinctive judgment, bring up only those particulars which are appropriate to the occasion or conducive to some desired end.

Lord Kames excellently describes the diffusive and circumstantial style of memory. "In the minds of some persons," he says, "thoughts and circumstances crowd upon each other by the slightest connections. I ascribe this to a bluntness in the discerning faculty; for a person who cannot accurately distinguish between a slight connection and one that is more intimate is equally affected by each. Such a person must necessarily have a great flow of ideas, because they are introduced by any relation indifferently; and the slighter relations, being without number, furnish ideas without end."

The same author calls attention to that humorous illustration of vulgar memory which Shakspeare has given in the speech of Mrs. Quickly to Sir John Falstaff. "What," said the knight, "is the gross sum that I owe thee?" His hostess replied: "Marry, if thou wert an honest man, thyself, and thy money too. Thou didst swear to me upon a parcel-gilt goblet, sitting in my Dolphin-chamber, at the round table, by a sea-coal fire, upon Wednesday in Whitsun-week, when the prince broke thy head for likening his father to a singing-man of Windsor; thou didst swear to me then, as I was washing thy wound, to marry me, and make me my lady thy wife. Canst thou deny it? Did not goodwife Keech, the butcher's wife, come in then, and call me gossip Quickly? coming in to borrow a mess of vinegar; telling us she had a good dish of prawns; whereby thou didst desire to eat some; whereby I told thee they were ill for a green wound? And didst thou not, when she was gone down-stairs, desire me to be no more so familiarity with such poor people; saying that ere long they should call me madam? And didst thou not kiss me, and bid me fetch thee thirty shillings? I put thee now to thy book-oath: deny it if thou canst."

A similar particularity is exhibited by the coachman in "Scriblerus," who, giving an account of a fight, runs through all the categories of Aristotle: "Two men fought for a prize: one was a fair man, a sergeant in the Guards; the other black, a butcher. The sergeant had red trousers; the butcher blue. They fought upon a stage, about four o'clock, and the sergeant wounded the butcher in the leg."

In contrast with the foregoing, a skilled and methodical recollection may be illustrated from Mark Antony's oration over the dead body of Cæsar, in which every circumstance calculated to excite the sympathy of his hearers is artfully recalled.—

> You all do know this mantle: I remember
> The first time ever Cæsar put it on;
> 'Twas on a summer's evening, in his tent,
> That day he overcame the Nervii.
> Look, in this place ran Cassius' dagger through:
> See what a rent the envious Casca made:
> Through this the well-beloved Brutus stabb'd;
> And as he pluck'd his cursed steel away,
> Mark how the blood of Cæsar follow'd it,
> As rushing out of doors, to be resolv'd
> If Brutus so unkindly knock'd, or no;
> For Brutus, as you know, was Cæsar's angel:
> Judge, O you gods, how dearly Cæsar lov'd him!
> This was the most unkindest cut of all;
> For when the noble Cæsar saw him stab,
> Ingratitude, more strong than traitors' arms,
> Quite vanquish'd him: then burst his mighty heart;
> And, in his mantle muffling up his face,
> Even at the base of Pompey's statue,
> Which all the while ran blood, great Cæsar fell."

A similar skilful selection of circumstances characterizes every good description of familiar scenes. "The Cotter's Saturday Night," by

Burns, and the "Elegy in a Village Churchyard," by Gray, both largely composed from recollections, contain excellent illustrations.

The qualities of a good memory. How cultivated.

2. Had we time to discuss other modes of memory analogous to those just considered, it would be interesting to notice the effect of one's prevailing temperament, of his regular business, or of his chief interests and inclinations, upon the current of his recollections.

But we shall now pass to the contemplation of those characteristics upon which the usefulness of one's remembrances, whatever be their objective character, immediately depends. These are three in number, — namely, *ease of acquisition*, *strength of retention*, and *readiness of reproduction*. The memories of different minds differ greatly in all these respects, partly by reason of their natural constitution, and partly by reason of their acquired habits; and it is seldom that any one mind excels in all these particulars at once.

Very often those who memorize with facility do not long retain what they have learned; and often those whose memories are sufficiently retentive find it difficult to recall instantly circumstances which they desire to mention. This separation of qualities does not take place necessarily, but is owing to a variety of causes. A person who learns easily is not compelled to any great or prolonged exercise of the attention, and frequently on this account fails to secure his acquisitions. This deficiency generally may be supplied if he repeat to himself what he desires to remember, and make it a special subject of consideration and of recollective effort. As a rule, we retain only that which we have acquired with some effort and attention.

The late Sir Thomas Fowell Buxton said to his sons, "What you know, know thoroughly;" and added: "There are few instances in modern times of a rise equal to that of Sir Edward Sugden. After one of the Weymouth elections I was shut up with him in a carriage for twenty-four hours. I ventured to ask him what was the secret of his success. His answer was: 'I resolved, when beginning to read law, to make everything I acquired perfectly my own, and never to go to a second thing till I had entirely accomplished the first. Many of my competitors read as much in a day as I read in a week; but at the end of twelve months my knowledge was as fresh as on the day it was acquired, while theirs had glided away from their recollection.'"

The difficulty which many experience in recalling what they certainly know is not always easily remedied. It arises from a slowness of mind which is often natural, but which is also produced by various depressing or retarding influences. This difficulty will be lessened by the systematic exercise of recollection; but it is to be counteracted chiefly by the cultivation of a cheerful and collected frame of spirit, by the maintenance of bodily freshness and vigor, and by a wise participation in that social intellectual intercourse which brings our faculties into lively exercise. Stupidity and dulness sometimes take possession of the most successful student. Let him quit his books; let him seek the open air and the scenery of nature; let him devote himself for a time to practical affairs; let him mingle with the life of men. He will return to his studies with new zest, and with a surprising increase of mental activity.

The faculty of invention as related to memory. Lord Kames and Professor Stewart quoted.

The doctrine has been taught by some that the faculties of invention and of memory never exist together in the same mind to any eminent degree. It is true that the exclusive or special cultivation of either of these faculties, while the other is comparatively neglected, tends to lessen the uncultivated ability. "A man of accurate judgment," says Lord Kames, "cannot have a great flow of ideas, because the slighter relations, making no figure in his mind, have no power to introduce ideas. And hence it is that accurate judgment is not friendly to declamation or copious eloquence. This reasoning is confirmed by experience; for it is a noted observation that a great or comprehensive memory is seldom connected with a good judgment." The first sentence in this passage may be too unqualified; in many men the exercise of sound judgment does not interfere perceptibly with correct and ready memory. Yet that intense and peculiar thought which belongs to inventive and speculative minds undoubtedly tends to carelessness and incapacity in all matters of mere acquisition and reproduction. Hence men of philosophical genius often present a poor appearance in comparison with others whose talent is of a lower grade, and sometimes even are hesitating and uncertain with respect to questions which they themselves have investigated and settled.

An extreme readiness and confidence in expounding the details of any system indicate rather the faithful disciple and the able advocate than the master himself. Professor Stewart remarks that "they who are possessed of much acuteness and originality enter with difficulty into the views of others, because they cannot adopt opinions which they have not examined, and because their attention is often seduced by their own speculations;" then he continues: "It is not merely in the acquisition of knowledge that a man of genius is likely to find himself surpassed by others: he has commonly his information much less at command than those who are possessed of an inferior degree of originality; and, what is somewhat remarkable, *he has it least of all at command on those subjects on which he has found his invention most fertile.*

"Sir Isaac Newton, as we are told by Dr. Pemberton, was often at a loss when the conversation turned on his own discoveries. It is probable that they made but a slight impression on his mind, and that a consciousness of his inventive powers prevented him from taking much pains to treasure them up in his memory. . . . A man of original genius, who is fond of exercising his reasoning powers anew on every point as it occurs to him, and who cannot submit to rehearse the ideas of others, or to repeat by rote the conclusions which he has deduced from previous reflection, often appears, to superficial observers, to fall below the level of ordinary understandings; while another, destitute of both quickness and invention, is admired for that promptitude in his decisions which arises from the inferiority of his understanding." These observations contain comfort for some earnest and independent thinkers; but they should not be interpreted as teaching that slowness of recollection is a mark of genius.

Notable examples of memory.

Many examples of notable memory are recorded in history. Till the decay of Pascal's health had impaired his memory, he is said to have "forgotten nothing of what he had done, read, or thought in any part of his rational age." Niebuhr, according to his biographer, "mastered languages and sciences, signs and the things signified, with equal ease, and with such certainty that with the mind's eye he saw each in its own individuality, separate from its fellows, and yet intimately and variously related to them. His memory was equally retentive of perceptions and of thoughts, of views and feelings, of sights and sounds; whatever came within the sphere of his recognition took up its due relative position in his mind with equal certainty and precision." The late Dr. Addison Alexander was able to repeat a discourse verbatim after one reading; and on one occasion, a considerable matriculation list of students having been mislaid, he immediately made out another from memory.

Hortensius, the Roman orator, at the close of a large auction sale, could enumerate all the articles sold in their order, together with the prices paid, and the names of the purchasers. "Nature," says Cicero, "gave Hortensius so happy a memory that he never had need of committing to writing any discourse which he had meditated, while, after his opponent had finished speaking, he could recall, word by word, not only what the other had said, but also the authorities which had been cited against himself." Cæsar, and other great military leaders, both of ancient and of modern times, have been remarkable for being able to recall the name and the exploits of every officer or soldier who had ever distinguished himself in their armies. It is related that Alexander the Great knew the name and face of every individual in his army of thirty thousand men.

A fellow-student of the father of the present writer had the whole of the New Testament so thoroughly learned by heart that, on the mention of any sentence, he could give the chapter and verse where it is to be found, and, on the numbers of chapter and verse being given, he could repeat the words thus called for. In ancient times the practice of committing literary productions to memory was more common than it is at the present day, when reading is universal and books are plentiful; and it resulted in achievements which would now be considered more remarkable than they were considered then. The two great poems of Homer, each containing twenty-four books and about fifteen thousand lines, were probably composed before "the art of writing and the use of manageable writing materials were known in Greece and the Grecian islands;" and it is certain that they were fully committed to memory by "rhapsodists," who recited them for the entertainment of others.

A very wonderful exercise of memory was exhibited by Morphy, the chess-player of New Orleans. This man sat alone in one room in a New York hotel, while six of the best players in that city sat in an adjoining room, each with a chess-board before him. The six players severally made moves at their pleasure; and each move, when made, was announced to Morphy through an open door. With very little hesitation he directed another move in the game reported from; and so he continued playing till he had beaten the greater number of his antagonists, one or two coming off with drawn games. Such a feat is most extraordinary; it reminds one of those wonderful calculators who, using memory instead of slate and pencil, perform complicated arithmetical problems in their heads. These are prodigies whom the Creator sends into the world that we may see what a marvellous thing the human mind is, and of what undreamt-of accomplishments it is capable.

The improvability of memory.

3. Men of ordinary talent cannot hope to equal the attainments of genius. They should satisfy themselves with the reflection that extraordinary powers are not essential to honorable success. Yet those who would pass their lives to the most advantage, and who would participate in that nobility which intellectual advancement confers, should remember that the powers of the mind are more capable of development than those of the body, and that, of all our mental endowments, memory is the most improvable.

This is particularly noticeable in the education of children, who at first are incapable of learning even the shortest verses, but who soon show themselves able for considerable lessons. Presently all the rules and methods, forms and paradigms, of grammars and arithmetics, are mastered; the mind is stored with the facts of history and geography and with the principles and illustrations of science, while whole pages of poetry and oratory are so studied that they become part of one's mental furniture, and are rehearsed with ease. Moreover, in subsequent life, should one's position call for the regular use of memory, a command of this faculty is gained rapidly by means of practice. In certain denominations of Christians young ministers are expected first to write out and then to commit to memory the sermon for Sabbath morning; and it is the common experience of such that this work, laborious at first, soon becomes easy. One or two attentive readings fixes an imprint of the discourse upon the mind.

Men, too, who are accustomed to employ their memory receive a peculiar satisfaction from the exercise of this faculty, and resort to it as a means of mental discipline and enjoyment. This was a pleasure of Lord Macaulay, a man whose memory resembled that of Pascal. In October, 1857, after he had retired from public life, and in great part from literary composition, he writes: "I walked in the portico and learned by heart the noble fourth act of the 'Merchant of Venice.' There are four hundred lines, of which I knew a hundred and fifty. I made myself perfect master of the whole, the prose letter included, in two hours." About this same time he committed long passages from Lucretius, Catullus, and Martial. Also, having studied the Peerage at odd moments, he "could soon repeat off book the entire roll of the House of Lords;" then, taking up the Cambridge and Oxford Calendars, he soon "had the whole of the University Fasti by heart." "An idle thing," he adds; "but I wished to try whether my memory is as strong as it used to be, and I perceive no decay."

Natural mnemonics. The aid given memory by proper arrangement and connection of ideas.

Faithful commemorizations and frequent rehearsals may be depended upon as the principal means for the permanent improvement of the memory. But we must add that the recollective faculty may receive great immediate assistance from our arranging in our minds the particulars of any given case in some orderly connection; and that this process tends also to a happy development of the reproductive faculty. The mind loves to act according to some law; therefore it loves order, for order is an arrangement of things according to a rule or law. Any one accustomed to master the details of comprehensive topics can testify that these details are recalled much more easily and completely if they have been arranged according to some one or more of the natural principles of order.

An order of recollection may be derived from the succession of events in time, or from the position of things in space, or from that similarity and difference of objects whereby they are thrown into logical classes, or from a continuous connection of cause and effect, or from association with other things that have a fixed order, or from grades of importance or of excellence, or from degrees in the possession of any quality, or from a combination of any two or more of these grounds of arrangement. The order of time is observed in the composition of chronicles or annals, in which no further departure takes place from simple successiveness than the nature of the history absolutely necessitates. Most private narratives, also, are constructed on this principle. The order of place applies to the description of any territory and its contents. Thus a farmer might describe his property by mentioning the different fields in succession as they lie in rows running east and west, and the various farm buildings with reference to some central structure. So one who had seen an exhibition of paintings might remember them according to the several places on the gallery wall in which they successively met his attention. Persons have been known who, after one or two readings, could repeat the entire contents of a daily newspaper, in which feat their memory doubtless was assisted by the order of place according to which the articles and advertisements followed each other in the columns of the paper.

The collection of things to be remembered into logical classes, according to the agreement and disagreement of their natures, is a principal step in the construction of any science, and, together with their proper subdivision, is an aid to the memorization no less than it is to the comprehension of facts and principles. This rule applies only so far as the matter of any department of knowledge admits of classification. Always helpful, it is more useful in relation to some topics of study than to others. Only classification enables the botanist and chemist to retain and recall the results of long-continued observation and experiment; no philosopher, statesman, man of letters, or man of business can hope to have a large store of information at command if he do not digest the details of his knowledge and arrange them under appropriate heads.

Often, again, the connection of things in our recollection is maintained, not by any order belonging to the things themselves, but by an order in other things to which they are related. Should some city officer desire to remember personally all the men of business within his territory, he might recall them according to the local order of their places of business; or he might arrange them in his mind with reference to their modes of employment, each trade constituting a class by itself; or he might form an alphabetical list of their names and familiarize himself with them in this way.

Finally, the arrangement of things in memory, according to their importance, or their degree of the possession of some quality, is often adopted. For in practical matters we desire to remember, first, that which is of most consequence, and then things of less importance; while for the ends of display and impression we begin with things of small moment, that the interest of our hearers may increase and may culminate at last. This order of importance is naturally followed when we would enumerate the individual persons or things in any class which we may have formed; and then it is supplementary to the order resulting from logical collection and division.

For one principle of order often co-operates with another in the guidance and assistance of our recollection. The order of place and that of time are concurrent with reference to objects viewed upon a journey. Those of time, causation, and written language may unite in history. For the most part, one principle supplements the work of another, and arranges the details of some subordinate subject that has already found a place for itself as a whole. Thus the topics of history are first arranged according to the order of time, but each of them is then treated with reference to its own origin and development, contemporary occurrences being for the moment neglected. Sometimes, too, History must describe scenes according to an order of locality, and sometimes she must descend to mere descriptive lists or enumerations.

The foregoing observations may indicate in what way the mind, with more or less consciousness of purpose, elaborates its acquisitions so as to facilitate future recollection. They apply only to cases in which such elaboration is found desirable, and not to cases which call for no work save that of simple memorization. But it is to be observed that in this arrangement of materials for remembrance, the mind does not slavishly adhere to any one law which may have served a purpose, but employs some other law so soon as another may suggest itself as better fitted to group and unite together the materials to be remembered. Hence *the natural order, even of our most considered recollections, cannot be said to follow any principles fixedly, but rather uses one principle after another, and this with a frequent freedom of choice; in having which freedom memory differs from the reasoning power.*

Artificial mnemonics.

While care and ingenuity may greatly improve those mnemonic arrangements of acquired knowledge which the mind makes spontaneously, and this especially in collections of fact which admit of scientific arrangement, we believe that no "art of memory" can supersede the methods of Nature, and that the work of Nature admits of no improvements, save such as may result from the development and application of her methods. For this reason certain artificial devices, which have been recommended in both ancient and modern times as powerful aids to memory, have been found to be of limited application, and consequently of limited value.

These devices may be illustrated by that of a pious servant-girl, who connected the successive parts of the sermon, on Sabbath morning, with the different panels in the ceiling of the church, and who thus, when the sermon was over, had a kind of map of it in her mind. Possibly the instructions to which she listened may have been improved in connectedness by having the order of place added to the order of thought; but, ordinarily, the parts of a well-composed discourse suggest each other better without such external aids. The recollective location of the several parts of a discourse upon those segments of a plane with which they had been previously associated, would tend to prevent the omission of any part from our rehearsal; but we question whether it would directly aid the remembrance of it. The effort needful to form the artificial association would weaken somewhat one's attention to the true and proper relations of the parts of the discourse, and in this way more might be lost than gained.

But if an external association can be formed so easily and quickly as not to interfere with the perception of internal connections, the memory is assisted by such an association. Hence a good reader more easily learns sentences from a book than as repeated from the lips of another person; for he sees them in their places. Hence, too, historical charts, in which the comparative duration of kingdoms and the times of events are denoted to the eye, are of considerable value.

Moreover, there is an especial advantage, when things have no close connection of their own, if we can impose one upon them by some easily remembered device. Those who have studied Hebrew grammar may remember the Hëemantic and Begadkephath consonants, which designations, and others like them, are simply mnemonic words, each containing all of the class of letters which it names.

In like manner the ancient Latin prosodists arranged lists of words in hexameters, so that they might be more easily committed; and of this sort is "The Memoria Technica of Mr. Grey, in which a great deal of historical, chronological, and geographical knowledge is comprised in a set of verses, which the student is supposed to make as familiar to himself as school-boys do the rules of grammar." A more familiar illustration is presented by the old stanza which begins, "Thirty days hath September," and by means of which the number of days in each month is fixed in our remembrance.

That, too, was a fine piece of ingenuity by which Petrus Hispanus — afterwards Pope John XXII. — indicated, in a few lines, the character as to figure and mood of all lawful syllogisms, and the mode in which those of the second and third figures might be reduced to the first He made a few short and easily remembered symbols express a great number of truths, not easily associated together; for we acquire and recall with special ease what may have been happily expressed in some rhythmical form of words.

CHAPTER XLIII.

PHANTASY.

The reproductive phase defined.

1. THE reproductive phase of mental life comprises more than the mere exercise of the reproductive power, — that is, more than the simple reproduction of past thought or knowledge, according to the laws of suggestion. It includes analysis, synthesis, judgment, quest, elaboration. It is

that development of our activity in which reproduction is the most prominent factor, and in which the mind, without making any advancement in knowledge, recalling and reconstructing the remembrances and ideas of its past acquisition, supplies itself with matter for contemplation.

If we would sharply distinguish the reproductive from the elaborative phase, we must emphasize the fact that contemplation and the satisfaction to be immediately derived therefrom constitute the principal and ultimate aim of the former mode of activity. When some recollection or imagination is used in the course of argumentative or scientific or moral thought, not for its own sake, but for the purposes of conviction or instruction or guidance, this would belong to the rational, rather than to the reproductive, intellect; for the mind exercises all its elementary powers in each of the phases of its activity. But because such uses of reproduced thought can be exhibited well in connection with others in which contemplation is the end aimed at, they have sometimes been discussed in connection with the latter, and then assumed as understood in the philosophy of the discursive faculty. This course is not objectionable; there is rather an advantage in it, provided the reasons for it be understood.

Two names for the reproductive faculty. These names differently specialized.

We have considered those mental operations in which the mind recalls and modifies its past *cognitions*. We shall now discuss those operations in which conceptions and ideas, abstracted from the conviction which originally accompanied them, are reproduced and elaborated. The general faculty corresponding to these operations has received two names from philosophers. Some, adopting a Greek word, have called it the *phantasy*, or power of producing appearances; while a greater number have employed the Latin term *imagination*, which signifies the power of constructing likenesses. Both designations are figurative; and both direct attention to the principal function of the faculty, which is to furnish ideal or mental objects. But while both terms have been applied to the general faculty, there is a difference in their use: the one emphasizes the reproductive, and the other the constructive, activity of mind.

This difference becomes especially marked when either term is opposed to the other. Then the word "fantasy" signifies that development of the reproductive power whose action receives little or no guidance from the will or judgment, in which a succession of fleeting appearances combine with each other, according to the spontaneous operation of the associative tendency. "Imagination," as contrasted with "fantasy," signifies that development of reproduction which is controlled by an intelligent purpose, and which accomplishes a desired work, — that is, the elaboration of mental images or representations.

The reproductive faculty divided. Fantasy contrasted with imagination.

Those who have employed the term "imagination" in the generic sense have distinguished the two modes of the faculty as the reproductive and the productive imagination, the former of these being identical with the fantasy in its specific character, and the latter with the imagination as contrasted with mere fantasy. Yet we should notice that reproduction is not confined to the fantasy, nor production to the imagination. Reproduction is the essential basis of each style of activity; and the creations of either power are equally wonderful with those of the other. But because fantasy works without the direction of skill and judgment, her constructions are largely accidental, — they fall together like the patterns in a kaleidoscope; while imagination, being an intentional exercise of intellect, exhibits productions specially worthy of the name.

Characteristics of the general faculty: 1 Does not regard objects as real.

2. Before entering upon the discussion of either specific faculty, some remarks are due to that general character which belongs to both.

Let us note the significant fact that imaginative thought presents itself without attendant belief in the reality of its objects. The essential difference between memory and phantasy is that in the one both the conceptions and the convictions of our original cognition are reproduced, while in the other conceptions only are recalled and used. A tailor may imagine himself a king, yet, unless he be deranged or deceived in some way, he cannot believe himself to be one; but when he remembers his customary occupation, he has both the conception and the conviction that he is a tailor. Thus Nature herself distinguishes thought from belief, conception from conviction, — a most important distinction in philosophy.

2. Its objects for the most part non-existent.

Again, let us remark that the objects of the imagination do not, for the most part, exist. We may locate imaginary events in real places, and in other ways mingle knowledge with fancy. But the objects which imagination furnishes, and with which she is especially concerned, do not exist. When we call them objects, or more expressly speak of imaginary or ideal objects, we use a figurative sort of language to indicate, not that we are really thinking of objects, but only that we are using ideas in the same manner as if we were.

3. And all individual.

Adopting this mode of speech, we say, further, that the objects produced by the imagination are all individual. This statement does not conflict with the doctrine that generalization and its results, and the secondary powers generally, are employed in the reproductive phase of mental life. General notions furnish the rules which the imagination follows; and the attributes with which she clothes her creations are abstracted from many sources. But those ideal objects which imagination produces are individuals. If they were of a general character, they would belong to the discursive phase of thought, and would present laws or types such as reason uses. Imaginary objects and constructions may contain much that is indefinitely conceived, and may nearly approach universality, but they are always granted individual difference; for in contemplation the mind loves individuality, and whatever else may make thought more to resemble fact.

4. Employs the thoughts of existence and non-existence.

With respect to the ideas of existence and non-existence, the composition of imaginative thought does not differ from that of other thought. We conceive of things as existing and as non-existent and as matters of question just as we do in a narration of fact.

The story of Mother Hubbard and her dog may furnish a good illustration for those who are not high-minded. For Mother Hubbard and her dog and the cupboard are conceived of as existing; but there is at first an imaginary question as to the existence of a bone, and whether or not the dog will get one; and then these latter conceptions are united with that of non-existence.

> "For when she got there
> The cupboard was bare;
> And so the poor doggy got *none*."

Imaginative thought, in its exhibition of objects, employs the same existential statements and conceptions that are employed by assertive or actualistic thought; but the propositions and conceptions of imagination are merely enunciative, while those which assert fact express also belief or knowledge.

5 Includes hypothetical judgment and belief.

In the next place, while imagination exhibits ideal objects as existing variously, without any judgment or belief as to the reality of this existence, it yet also includes much judgment and belief concerning the imaginary existence of its own entities. The judgments and beliefs thus formed are hypothetical, and are of two classes. They comprise, first, those pertaining to the relations which must exist, even in imagination, among any given set of entities, according to their nature and the nature of things in general; and, secondly, our judgments in regard to the fitness or unfitness of any element of conception to enter into the construction which we may be endeavoring to complete. The first of these modes of judgment belongs alike to fantasy and imagination; the second to imagination only. These judgments are hypothetical; they do not affirm the real existence of anything, but only assert that, on the supposition of the existence of certain objects, they must exist in certain relations, or in connection with certain other objects, which therefore must be supposed to exist also.

Should one form to himself the conception, or read the description, of the capital of some ancient empire, he could not do so without giving the city a location in some country, or without supposing builders who erected it out of suitable materials, and houses and streets accommodated for private and public use, and inhabitants to occupy these. He would also conceive some governmental officers and regulations to be a necessary part of its constitution. Or were it his desire to plan a model capital for some Utopian kingdom, he would exercise judgment with respect to the site of the city, and the width, length, grade, and direction of its streets; with respect to the materials for building, the location and construction of buildings according to their several uses, and the disposition of parks, squares, fountains, trees, statues, and other ornamental additions; and with respect to the political, educational, and benevolent institutions which might insure the well-being of the inhabitants.

This exercise of judgment is a principal part of the work of the poet; it is because of his skill in the employment of it that he is called a poet, — a *maker* of things beautiful and pleasing.

6. Not literally a creative, but only a reproductive and plastic, power.

The formations of fancy are often wonderfully different from anything to be found in actual existence, and therefore, because of their great novelty, they have been styled creations. But it is scarcely necessary to observe that imagination is only a reproductive and constructive faculty; it is not literally a creative one. The novelty of her productions pertains only to their construction. Phantasy does not provide for herself a single elemental thought, but obtains all the materials for her building from the faculties of perception and acquisition. Hence it is true, philosophically, that fact furnishes all the materials for fiction.

7. Is limited only to the sphere of abstract possibility.

Finally, we say that the realm of phantasy includes all things that have in them an element of possibility, and is therefore bounded only by the absence of possibility. The purely impossible — that which contains no element of possibility — cannot be conceived. We cannot imagine a change to take place without any cause, or two things to be one in the same sense in which they are two, nor anything to be and not to be at the same time. Nor can anything impossible be conceived so far forth as it is impossible. But we can imagine things impossible which contain elements of possibility, provided only we confine our attention to these elements. The Lady Fragrantia asked of Baron Munchausen, "Pray, my dear Baron, were you ever at the Falls of Niagara?" "Yes, my lady," he replied; "I have been, many years ago, at the Falls of Niagara, and found no more difficulty in swimming up and down the cataracts than I should to move a minuet." This story of the Baron does not evidence any love for truth. He asserts, as a feat of his own, what would be a downright impossibility for any human being. Yet the statement has a sort of conceivability; because no one could swim without a sufficiency of water, and there is always plenty in the Falls of Niagara.

Fantasy. In what sense a passive power.

3. We pass now to fantasy, or the spontaneous mode of the reproductive phase of thought. As contrasted with the imagination, some have called this a passive power, because in mere fantasy voluntary agency is suppressed, and the associative tendency operates according to any influences that may be brought to bear upon it from within or from without.

Nevertheless, in one sense, the mind is pre-eminently active in all its reproductions. In this case the term "passive" can signify nothing more than that *voluntary* activity is either absent or at the least subordinated to that which is spontaneous.

Never exercised alone. Its prominent manifestations.

Fantasy, like our other intellectual powers, never works wholly by itself. Generally, its operations mingle in that thronging crowd of activities which pass over the track of one's conscious life. Sometimes the soul is so engaged in the observation of fact, or so absorbed in memories of the past, or so intent upon the solution of some problem, that the contemplation of idealities is excluded; but when our minds are not thus earnestly preoccupied, we often entertain ourselves with passing fancies.

This especially occurs when one's surroundings naturally suggest similitudes or suppositions. In a journey through a wild wooded country, strange shapes, to which the fantasy has given a nature not their own, present themselves to the lonely traveller; incidents, adventures, dangers, and escapes are experienced which have no nearer relation to reality than is to be found in the possibility of their occurrence and in their congruity with surrounding scenes. The lively images of fantasy fill up the intervals of observation and reflection.

But, to find this power in its purest and most uninterrupted exercise, *we must turn to times at which the mind is freest from the influence of external objects and from the guidance of its* *own rational energy;* for the first of these causes continually recalls the soul to the apprehension of fact, and the other determines its thoughts into some definite line of recollection or elaboration.

This freedom is especially experienced whenever the general energies of body and mind are in a reduced or a disordered condition; and for this reason the phenomena of reverie, of dreams, of somnambulism, of the hallucinations of sense, and of insanity, all illustrate the workings of the fantasy.

Reverie defined.

The style of thought called reverie attends a condition of mind in which the vigorous exercise of our faculties is either prevented by weakness or exhaustion, or laid aside through indolence. The first thinkings of the infant are probably of this description; such also are the wanderings of extreme old age. In reverie an unprompted and unchecked succession of thoughts pass before the mind, and are contemplated with equal interest whether they be recollections or mere imaginings. But the principal part of reverie, and that which gives character to its operations, is the exercise of the fantasy. Persons fully occupied with care and business have little time for this indulgence; but those who are disengaged often spend hours in it. Thus employed, the ambitious youth lays out for himself a long course of exciting adventure or honorable achievement, and the maiden surrounds herself with the delights of a happy home in which she reigns the queen.

Fantasy involves only a slight exercise of mental energy. The reason given.

Less energy is needed for the action of fantasy than for the exercise of our other mental gifts. A noticeable degree of vigor is required even for distinct and satisfactory recollection. One whose remembrance may be undecided, by reason of apathy or distraction or weakness or somnolency, may sometimes overcome this difficulty if he rouse himself to energetic and attentive thinking. An equal, if not a greater, degree of psychical force is demanded for any mode of external cognition. Mere sensation may not require much tension of mind; but the exercise of judgment or perception in connection with the sensation involves a considerable degree of it. A yet larger draft on mental vigor is made by the elaborations of the imagination; while rational and abstract thought, in constructing its theories and solving its problems, calls for the highest exercise of energy and attention. For then we detain the passing idea, scrutinize remembered details, select significant facts and reject the insignificant, carefully join consequents to antecedents and one correlate to another, and guide the whole work of reason to a satisfactory conclusion. Fantasy has no such labors to perform, and therefore works with ease.

In the grand Centennial Exposition which recently took place in Philadelphia, there was one prominent building called the Machinery Hall. In this hall many steam-engines, all supplied with power from one large boiler, were engaged in various labors. Some drove card-printing, silk-weaving, type-setting, pin-making, and other light machines; some assisted in the heavier tasks of cutting nails, stamping coins, turning fanning-wheels and furniture lathes, and twisting ropes of wire or hemp; others gave motion to heavy mill-stones, or worked huge pumps, or exerted enormous pressure upon bales of cotton or plates of iron, so as to alter these in bulk or shape. Now we might suppose a time at which the supply of steam from the central reservoir would be insufficient to move the larger engines and their attachments, while yet those engines which had only light operations to sustain would be as busily at work as ever. And it is evident that if the steam were shut off from the larger engines at any time, the smaller ones, when supplied with all the force to be expended, would work yet more vigorously, and that, too, with a less amount of motive power than would be usually employed for the whole collection of machinery.

Something like this occurs in the economy of mind; and for this reason the operations of fantasy frequently appear more extensive, and even more vigorous, in proportion to the state of weakness or abeyance which may affect our other powers. Hence persons who have recovered slowly from some severe sickness can tell how their enforced leisure and their convalescent weakness together have been productive of reveries.

Dreams
Their origin.

This same law of mind is illustrated by an experience akin to reverie, — that is, by the dreaming which takes place in sleep. In this experience the exercise of the fantasy is more uninterrupted and complete than at any time during our waking hours. For this there are two reasons: first, the perception of external things is wholly, or in great measure, suspended during sleep, and so the influence of this perception to arrest and control the course of reproductive thought is removed; and, secondly, that peculiar condition of inactivity which the brain assumes in sleep reduces the active energy of the soul more powerfully than fatigue, or languor, or indolence, or any other cause which operates while we are awake. In very deep sleep mental action probably ceases entirely; we are as devoid of thought and of sensation as when in a swoon. But in ordinary slumber those operations only are suspended which involve the more energetic action of the soul; the movements of the fantasy, and such others as may prove of equal facility, continue.

The extent to which one's powers of attention and discrimination are suppressed in sleep is manifested in various ways, but especially in the acceptance by the mind of its own fancies for realities, in our failure to discover and reject the absurdities which enter into the composition of our dreams, and in the incoherent thinkings often exhibited by those who are but partially awakened. That the condition of sleep is peculiarly favorable to the exercise of fantasy is evident from the experience of all, but particularly from the fact that persons who show little or no play of imagination during their waking hours can often entertain us with an account of wonderful dreams and visions which have come to them during the night. Most men have witnessed stranger and greater things while asleep than they have ever been able to imagine when awake.

Belief in dreams accounted for. Professor Stewart's views.

The exercise of belief in dreams arises from several causes which act in conjunction with the suppression of our more energetic modes of thinking. Professor Stewart ascribes our delusion in dreaming to "a suspension of the influence of the will," including therein the suspension of "recollection and reasoning," as voluntary operations. But inasmuch as some part of our suppressed activity seems independent of the will, it may be more satisfactory to say that *sleep suspends, not merely the volitional control of our faculties, but also every really powerful exercise of them, whether voluntary or not.* Such being the case, we are not only liable to be imposed upon by a succession of images over which we have no control, and which in this respect resemble our actual perceptions, but, our ordinary vigor of discrimination being lost, we are less able to judge respecting the real character of those images which pass before us. These causes, together with our separation from conscious contact with external objects, and from their stimulating and regulating influence, may account sufficiently for the delusiveness of dreams.

Professor Stewart, though in a different connection, adds another thought to the explanation of the delusiveness of dreams. He teaches that *a momentary conviction of reality attends every exercise of the imaginative power*, and that it is only by a judgment immediately consequent upon the imaginative act that this belief is corrected. But this doctrine can scarcely be maintained. We do not think that a painter who conceives the face and figure of an absent friend believes, for the moment, that his friend is with him. And however this may be with persons remarkably endowed, it is certain that ordinary people do not believe that the absent friends or distant scenes and objects of which they may be thinking, really exist before them. The writer recalls the appearances of two noble men, his uncles Hugh and John, without for a moment believing them to be present here in the land of the living.

The truth is that the mind, when in the full normal exercise of its faculties, can judge immediately of the character of its passing states. When a sensation may be felt, and its external cause perceived in connection with it, this is recognized as a sense-perception. When the thought of former things is reproduced, with belief in their past reality, this is accepted as remembrance. And conceptions which occur without sensation, or presented object, or belief in the past, are known to be imaginations. These differences are understood at a very early age, probably at the very commencement of distinct thought.

But while we cannot admit that momentary belief in things imagined is an original and constitutional principle, nor even an ordinary rule, of mental action, *we must allow that an involuntary and irrational belief is frequently experienced;* and we account for this belief by the well-known tendency of the intellect to form instinctive habits of judgment. In this way, principally, we explain the fact, noticed by Dr. Reid, that "men may be governed in their practice by a belief which, in speculation, they reject. I knew a man," says he, "who was as much convinced as any man of the folly of the popular belief of apparitions in the dark; yet he could not sleep in a room alone nor go into a room in the dark. Can it be said that his fear did not imply a belief of danger? This is impossible. Here an unreasonable belief, which was merely a prejudice of the nursery, stuck so fast as to govern his conduct, in opposition to his speculative belief as a philosopher and a man of sense."

We are satisfied with this theory, that the belief was a "prejudice of the nursery."

Similar momentary delusions occur in connection with our acquired sense-perceptions and the methods of our daily occupations. And, certainly, if instinctive habits of judgment may cause momentary delusion during our waking hours, we may expect them to cause a more perfect and prolonged delusion during sleep. The force of habit, therefore, is a cause which intensifies the operation of that already named, whereby conceptions, because of their involuntary character or their complete occupation of our attention and interest, are sometimes mistaken for perceptions.

Extraordinary dreaming achievements accounted for.

Although the general principle, that mental energy is reduced during sleep, is supported by too many facts to admit of denial, certain phenomena are occasionally observed which seem to conflict with it.

These phenomena exhibit results such as are ordinarily obtained by persistent mental effort. Persons have remembered things in dreams which they had vainly endeavored to recollect while awake; others have solved problems upon which they had been long pondering; others have composed speeches and poems which they could afterwards recite. Condorcet, a name famous in the history of France, told some one that while he was engaged in abstruse calculations, he was frequently obliged to leave them in an unfinished state, in order to retire to rest; and that the remaining steps and the conclusion of his calculations have more than once presented themselves in his dreams. Franklin has made the remark that the bearings and results of political events which had caused him much trouble while awake, were not unfrequently unfolded to him in dreaming. And Mr. Coleridge says that as he was once reading in the "Pilgrimage of Purchas" an account of the palace and garden of Khan Kubla, he fell into a sleep, and in that situation composed an entire poem of not less than two hundred lines, some of which he afterward committed to writing. The poem is entitled "Kubla Khan," and begins as follows: —

> "In Zanadu did Kubla Khan
>   A stately palace dome decree,
> Where Alph, the sacred river, ran,
> Through caverns measureless to man,
>   Down to a sunless sea."

Such experiences as these are not of common occurrence. They belong for the most part to minds of extraordinary talent, and indicate the natural effortless workings of genius in some accustomed channel. They occur while slumber is light and the brain in an excited condition.

Moreover, the new insight occasionally obtained in dreams may be accounted for by the free play of the suggestive power about subjects with whose important relations the mind has become familiar. For it is well known that great discoveries, though not made without long study and research, have generally flashed into the mind of the investigator at some unexpected moment. Thus, by a happy intuition, Newton discovered gravitation, Archimedes the principle of specific gravity, and Goodyear the vulcanization of rubber.

The influence of sensations in dreams.

Although sense-perception does not ordinarily take place in sleep, except to a limited extent in our lighter slumbers, the mind is not unconscious of various sensations, and is often influenced by them in the formation of its dreams. Every one can remember instances of this phenomenon which have occurred within his own experience. Sometimes a noise indistinctly heard suggests some violent occurrence; or pressure upon one's person excites the idea of a struggle with an overmastering antagonist. Often an undigested supper produces incubus, or nightmare, in which one vainly attempts to escape from troubles and burdens by which he is surrounded and oppressed.

"Dr. Gregory relates that, having occasion to apply a bottle of hot water to his feet, he dreamed that he was walking on Mount Etna, and found the heat insupportable. A person suffering from a blister applied to his head imagined that he was scalped by a party of Indians. A person sleeping in damp sheets dreamed that he was dragged through a stream. By leaving the knees uncovered, as an experiment, the dream was produced that the person was travelling by night in a diligence. Leaving the back part of the head uncovered, the person dreamed that he was present at a religious ceremony in the open air. The smell of a smoky chamber has occasioned frightful dreams of being involved in conflagration. The scent of flowers may transport the dreamer to some enchanted garden, or the tones of music may surround him with the excitements of a well-appointed concert."

The estimation of time in dreams.

We have seen, in the discussion on memory, that our estimates of time are for the most part founded on our experience of the duration of events, and are made by a habit of judgment in which transactions are accepted as indicating the time occupied by them. Such being the case, it is evident that a mistaken belief as to the reality of events will be naturally accompanied by a corresponding delusion as to the passage of time. A deception is experienced analogous to that effect which is sometimes produced in connection with the sense of sight.

"When I look into a show-box," says Professor Stewart, "if the representation be executed with so much skill as to convey to me the idea of a distant prospect, every object before me swells its dimensions in proportion to the extent of space which I conceive it to occupy; and what seemed before to be shut within the limits of a small wooden frame is magnified in my apprehension to an immense landscape of woods, rivers, and mountains." Moreover, since fantasies may succeed each other with great rapidity, a long series of events sometimes seems to transpire during a short dream.

CHAPTER XLIV.

SOMNAMBULISM AND HALLUCINATION.

Somnambulism, a theory of.

1. THE phenomena of the fantasy, in connection with somnambulism, or abnormal sleep, are essentially the phenomena of dreaming modified by certain affections of the brain and nervous system. On the immediate nature of the action of this organ no one has ever yet thrown any light. We know that mental changes are conditioned on cerebral action. The function of the brain seems to be a regulative limitation imposed by creative wisdom upon the present exercise of our faculties. In ordinary sleep a general dormancy invades this whole organ. This dormancy admits of degrees, so that certain modes of psychical operation may continue, while others are totally or partially suppressed. If to this statement we add that some parts, or specific functions, of the brain may be affected with somnolency, while others are in an excited and active condition, we shall have a sufficient basis for a theory of somnambulism.

Even in ordinary sleep our different faculties do not cease to act at once or equally. Cabanis, a French savant, after certain experiments, held that sight becomes quiescent first, then taste, then smell, then hearing, and, lastly, touch. This order probably is often departed from; but the statement of Cabanis may be accepted as a general rule. Moreover, some of our senses sleep more profoundly than others. Often, when a loud noise will not awaken one, if the soles of his feet be tickled, or even if he be touched anywhere, he is immediately aroused. And our internal and vital sensations almost always exhibit some activity.

Should we now suppose a special excitement of the brain in one part or function whereby psychical life in some one direction should be facilitated or stimulated, while in other directions our powers should cease to operate, this would explain the phenomena of somnambulism, especially in cases where a cerebral excitement may have arisen in connection with an excitement of the mind itself; for in attempting to account for the singular modes of activity now under consideration, we must have regard to one's existing mental tendencies as well as to the cerebral conditions under which these act.

Illustrated from Shakspeare.

An instructive description of somnambulism, as it is ordinarily experienced, is to be found in Shakspeare's account of the conduct of Lady Macbeth, after she and her husband had obtained the throne of Scotland through the foul murder of King Duncan. The great dramatist misses none of the essential features of the phenomenon, and therefore we shall quote at full length the passage to which we refer. It is the opening scene of the fifth act of the tragedy.

Enter a DOCTOR OF PHYSIC *and a* WAITING-GENTLEWOMAN.

Doct. I have two nights watched with you, but can perceive no truth in your report. When was it she last walked?

Gen. Since his majesty went into the field, I have seen her rise from her bed, throw her nightgown upon her, unlock her closet, take forth paper, fold it, write upon 't, read it, afterwards seal it, and again return to bed; yet all this while in a most fast sleep.

Doct. A great perturbation in nature, to receive at once the benefit of sleep, and do the effects of watching! In this slumbery agitation, besides her walking and other actual performances, what, at any time, have you heard her say?

Gen. That, sir, which I will not report after her.

Doct. You may to me; and 't is most meet you should.

Gen. Neither to you nor any one; having no witness to confirm my speech.

Enter Lady Macbeth, *with a taper.*

Lo you, here she comes! This is her very guise; and, upon my life, fast asleep. Observe her; stand close.

Doct. How came she by that light?

Gen. Why, it stood by her: she has light by her continually; 't is her command.

Doct. You see, her eyes are open.

Gen. Ay, but their sense is shut.

Doct. What is it she does now? Look, how she rubs her hands!

Gen. It is an accustomed action with her, to seem thus washing her hands: I have known her continue in this a quarter of an hour.

Lady M. Yet here 's a spot.

Doct. Hark! she speaks: I will set down what comes from her, to satisfy my remembrance the more strongly.

Lady M. Out, damned spot! out, I say! — One: two: why, then 't is time to do 't. — Hell is murky! — Fie, my lord, fie! a soldier, and afeard? What need we fear who knows it, when none can call our power to account? — Yet who would have thought the old man to have had so much blood in him?

Doct. Do you mark that?

Lady M. The thane of Fife had a wife: where is she now? — What, will these hands ne'er be clean? — No more o' that, my lord, no more o' that: you mar all with this starting.

Doct. Go to, go to: you have known what you should not.

Gen. She has spoke what she should not, I am sure of that: Heaven knows what she has known.

Lady M. Here 's the smell of the blood still: all the perfumes of Arabia will not sweeten this little hand. — Oh, oh, oh!

Doct. What a sigh is there! The heart is sorely charged.

Gen. I would not have such a heart in my bosom for the dignity of the whole body.

Doct. Well, well, well, —

Gen. Pray God it be, sir!

Doct. This disease is beyond my practice: yet I have known those which have walked in their sleep who have died holily in their beds.

Lady M. Wash your hands, put on your nightgown; look not so pale. — I tell you yet again, Banquo 's buried; he cannot come out on 's grave.

Doct. Even so?

Lady M. To bed, to bed! there 's knocking at the gate: come, come, come, come, give me your hand. What 's done, cannot be undone. — To bed, to bed, to bed!

Doct. Will she go now to bed?

Gen. Directly.

Doct. Foul whisperings are abroad: unnatural deeds
Do breed unnatural troubles; infected minds
To their deaf pillows will discharge their secrets.

Analysis of the illustration.

In the foregoing scene let us note, first, that Lady Macbeth is evidently sleeping. This agrees with the doctrine that somnambulism is nothing else than an unnatural or morbid sleep.

In the next place, she has complete command of her limbs and bodily motions. She is able, not only to walk, but to dress, to take up and carry a candlestick, to write, to speak, and, in short, to do whatever other action may be pertinent to that collection of conceptions and delusions with which her mind is occupied. For somnambulism is so called only because walking is the most notable performance of persons who may be thus affected; as a matter of fact, they show themselves capable of a variety of actions, though this capability is greater in some cases than in others.

In the third place, Lady Macbeth exhibits a partial or limited exercise of the perceptive faculties. Her open eyes doubtless receive images of the persons and objects about her. She apparently has the *sensations* of vision, but she *perceives* only those objects which are immediately related to her own internal activity. Her conduct resembles that of an obsequious courtier who, in the presence of a great man, is oblivious of the existence of all other persons. What mental energy she has is entirely engrossed in one way of thinking; none can spend itself in any other direction. She neither sees nor hears the doctor and the nurse. This limitation of perception is a significant feature in somnambulism, as those can testify who have looked into the bright yet vacant eyes of their friends who have been thus affected.

Again, the thoughts of Lady Macbeth evidently run in a channel prepared for them by her previous experience. Persons who walk in sleep do so usually after some excitement which they have encountered, and their actions and words have reference to circumstances in which they have become deeply interested.

Further, the incoherence of Lady Macbeth's utterances is noticeable. Each sentence has sense in itself, and relates to a common general subject; but it is not rightly connected with those that precede and with those that follow. Here, also, Shakspeare reproduces Nature. Sometimes the sayings of the somnambulist may not be so inconsequent as those of Lady Macbeth; but, as a rule, they do not yield any connected sense.

Finally, it is clear that Lady Macbeth on the succeeding morning had no remembrance of her strange conduct; this agrees with the observation that somnambulists either entirely forget their eccentric performances, or remember them only as parts of a dream.

Dr. Abercrombie tells the story of a young nobleman, living in the citadel of Breslau, who was observed by another boy, his brother, "to rise in his sleep, wrap himself in a cloak, and escape, by a window, to the roof of the building. He there tore in pieces a magpie's nest, wrapped the young birds in his cloak, returned to his apartment, and went to bed. In the morning he mentioned the circumstances as having occurred in a dream, and could not be persuaded that there had been anything more than a dream till he was shown the magpies in his cloak." The somnambulist probably does not differ from other dreamers with respect to the recollection of his performances during sleep.

Magnetic somnambulism, or mesmerism.

Beside the somnambulism which we have now described, and which may be regarded as that ordinarily experienced, there are forms of the phenomenon which may be styled extraordinary, and which, for the purposes of discussion, we shall distinguish into *the magnetic* and *the ecstatic.* The former of these is remarkable for its origin ; the latter for its exhibition of talent. Magnetic somnambulism is so named from the supposition that it is produced by a force somewhat similar to magnetism, and which therefore has been called animal magnetism. The doctrine has been taught that this force, being generated in connection with our corporeal functions, accumulates largely in some animals and persons, and can be emitted by them at their will, so as to control organizations specially liable to be affected by it.

Dr. Francis Mesmer advocated this theory in France during the latter part of the eighteenth century, and made it the basis of a system of therapeutics, which, after investigation by a governmental commission, was rejected as of no value. Mesmer was quite successful in producing somnambulism by means of passes of the hand, and with the aid of apparatus addressed to the imagination, and suggestive of some mysterious influence; since his time the term "mesmerism" has been applied to the theory and practice of his art. Although there is no evidence of the existence of any such thing as animal magnetism, it is certain that some persons can effect a wonderful change in the mental and bodily state of others who submit to be manipulated by them.

It is an established fact that when one is overcome by the mesmeric sleep, he becomes obtuse to all impressions save those which have relation to the operator; the very succession of his thoughts and actions follows the suggestion and guidance of the operator. From this it will be apparent that mesmeric sleep resembles ordinary somnambulism in permitting only a limited exercise of the perceptive faculties, but differs from it in being caused and controlled by an artificial influence. It seems to be the result of the action of a peculiar mental excitement upon a susceptible nervous system.

In connection with the mesmeric sleep we may mention a similar phenomenon, which may also be regarded as of artificial origin. For some persons exhibit the power of putting themselves into a somnambulistic condition, during which they develop trains of thought and of speech on subjects with which they have become familiar. This power is sought and cultivated by those spiritualistic "mediums" who profess, by means of it, to put themselves into communication with another world.

Ecstatic somnambulism. That form of somnambulism which we have termed ecstatic is a development of either the natural or the artificial somnambulism, under conditions which produce a remarkable exercise of one's gifts. "The somnambulist," says President Porter, "sometimes displays great acuteness of judgment. He sees resemblances and differences which had not occurred to him in his waking states, and which astonish lookers-on; he is quick in repartee, solves difficult questions ; he composes and speaks with method and effect; he reasons acutely; he interprets character with rare subtilty; he understands passing events with unusual insight; he predicts those which are to come by skilful forecast; he appears to be another person endowed with new gifts, or quickened by some extraordinary inspiration."

Dr. Porter qualifies this description afterwards by saying: "These efforts themselves are single and isolated sallies of subtilty and insight rather than sustained and connected trains of judgment and reasoning." He accounts for them by a special concentration and excitement of mind, during which one's thoughts are occupied with but few objects, and exercised in the line of his previous efforts and training. This ecstatic somnambulism resembles that wonderful dreaming in which intellectual feats have been easily accomplished, or in which, so to speak, they have accomplished themselves. It may sometimes indicate a genius which slumbers under the ordinary conditions of one's life. But as it is generally, if not always, accompanied with intense cerebral action, we are inclined to ascribe it chiefly to the stimulus given to our mental powers by a morbidly excited brain.

The supernatural production and control of an ecstatic state, whereby one is rapt from earthly things and made the mouthpiece of celestial wisdom, is an important subject, which, however, lies beyond our present purpose. Such inspiration is a possibility; but it should not be assumed as a fact without sufficient evidence.

In connection with ecstatic somnambulism we should notice some extraordinary claims made by those who practise the art of mesmerism. They assert that the somnambulist often sees objects in the profoundest darkness, and without the use of the ordinary organs of vision ; that he can behold places and persons on the other side of the globe as if he were there with them; and that he is able to divine the seat and cause of disease, and to foretell future events. So far as the perception of things distant or future is concerned, we may safely hold that nothing occurs beyond the deceptive imaginations of the dreaming state: the man who sees Lake Lucerne or Righi Kulm in a vision, only imagines what appearance the lake or the mountain would have if he saw them in reality. The mediumistic diagnosis of disease seems to be simply guesswork and quackery. But we allow that the sensitiveness of our organs, and of our minds in connection with them, is often quickened to a very great degree during somnambulism, so that sensation and perception may take place under conditions which would not ordinarily suffice for their production.

In this way we explain such feats as those of Jane Rider, mentioned in Dr. Oliver's physiology. The eyes of this woman were securely bandaged with two large wads of cotton and a black silk handkerchief. "The cotton filled the cavity under the eyebrows, and reached down to the middle of the cheek; and various experiments were tried to ascertain whether she could see. In one of them a watch enclosed in a case was handed to her, and she was requested to tell what o'clock it was by it; upon which, after examining both sides of the watch, she opened the case, and then answered the question. She also read, without hesitation, the name of a gentleman written in characters so fine that no one else could distinguish it at the usual distance from the eye. In another paroxysm the lights were removed from her room, and the windows so secured that no object was discernible, and two books were presented to her, when she immediately told the titles of both, though one of them was a book which she had never before seen." Occurrences like these have led some to conjecture that the soul may become independent of organs, and be able, even while in the body, to perceive objects without the intervention of the senses. This view is not warranted by necessity. The theory of an ecstatic state of the powers of sense is to be preferred.

Hallucinations.

2. The part which fantasy plays in producing those hallucinations and apparitions which sometimes substitute themselves for realities, is to be distinguished from the operation of this power in connection with the delusions of dreaming. In the latter, deception results from a reduction of the energies of the soul, and the absence of the corrective influence of external perception; but the hallucinations of sense mingle themselves with our veritable cognitions, and take place in spite of the exercise of a sound judgment and of our condemnation of them as fanciful. In this they resemble those errors of perception which spring from our instinctive habits of judgment. The principal cause of these hallucinations is a morbid condition of the organs of sense.

When these organs become unnaturally susceptible, it is possible for the sensations appropriate to some object to be produced in them while the object itself is absent. This happens for the most part, we believe, through the influence of the fantasy, though it may result also from the stimulation of a reproductive tendency in the organ itself, under some physical excitement. In either case the sensible impression of the organ combines with the action of the intellect, and produces a phantasm, or image, which closely resembles an object of perception. Sometimes this phantasm is indistinct and transitory, as when, waking from feverish sleep, one may fancy that he sees and hears, when no real perceptions take place. These hallucinations are easily rejected, and are soon forgotten; but when, through the strength of disease, apparitions become vivid and stable, sober discrimination is needed to perceive that they are merely mental images, —

> "False creations,
> Proceeding from the heat-oppressed brain."

When the power of discrimination is wholly lost, as it is in delirium and insanity, the deception becomes complete and prolonged. We remember the conduct of a poor lieutenant whom we visited in his hut during the late war, and who was suffering from delirium tremens. "These, sir," he said, pointing here and there about him, "are the reptiles that are going to devour me." Then, springing up, he rushed out into the company street, seized whatever missiles came to hand, and flung them, with all his force, at the doors, corners, and chimneys of the huts of his comrades, and wherever else he could spy his imaginary tormentors.

The fact that sense-hallucinations attack those who are addicted to the habitual use of spirituous liquors, or of opium, Cannabis Indica, or some other narcotic stimulant, shows that this phenomenon has its principal origin in a disorder of the nerves. Generally the beginning and the ending of every experience of hallucinations can be connected with some physical cause. Two cases, chiefly remarkable for being scientifically recorded, may illustrate the origin of hallucinations.

Illustrations. The first, which is reported in the "Edinburgh Medical Journal," is that of a citizen of Kingston-on-Hull. This man had a quarrel with a drunken soldier who attempted to enter his house, during which "the soldier drew his bayonet and struck him across the temples, dividing the temporal artery. He had scarcely recovered from the effects of a great loss of blood on this occasion, when he undertook to accompany a friend in his walking-match against time, during which he went forty-two miles in nine hours. Elated by his success, he spent the whole of the following day in drinking. The result of these things was an affection, probably an inflammation, of the brain; and the consequence of this was the existence of those vivid states of mind which are termed apparitions. Accordingly, our shop-keeper (for that was his calling) is reported to have seen articles of sale upon the floor, and to have beheld an armed soldier entering his shop, when there was nothing seen by other persons present. In a word, he was for some time constantly haunted by a variety of spectres, or imaginary appearances; so much so, that he even found it difficult to determine which were real customers and which were mere phantasms of his own mind."

The other case — that of Nicolai, a distinguished Prussian bookseller — is preserved in a memoir read by himself before the Royal Society of Berlin, on the 28th of February, 1799. Mr. Nicolai was a person of unusual intelligence and of vivid imagination, and at the time of the occurrence of the hallucinations, had been agitated by a great trouble. "My wife," he says, "came into my apartment in the morning to console me, but I was too much agitated to be capable of attending to her. On a sudden I perceived, at about the distance of ten steps, a form like that of a deceased person. I pointed at it, asking my wife if she did not see it. My question alarmed her very much, and she immediately sent for a physician. The phantom continued about eight minutes. I grew more calm, and, being extremely exhausted, fell into a restless sleep, which lasted half an hour. At four in the afternoon, the form which I had seen in the morning reappeared. I was by myself when this happened, and, being uneasy at the incident, went to my wife's apartment; there, likewise, I was persecuted by the apparition, which, however, at intervals disappeared, and always presented itself in a standing posture. About six o'clock there appeared, also, several walking figures, which had no connection with the first.

"After the first day the form of the deceased person no more appeared, but its place was supplied with many other phantoms, sometimes representing acquaintances, but mostly strangers; those whom I knew were composed of living and deceased persons, but the number of the latter was comparatively small. The persons with whom I daily conversed did not appear as phantoms. These appearances were equally clear and distinct at all times and under all circumstances, both when I was by myself and when I was in company, as well in the day as in the night, and in my own house as well as abroad. They were less frequent when I was in the house of a friend, and rarely appeared to me in the street. When I shut my eyes they would sometimes vanish entirely, though there were instances when I beheld them with my eyes closed; yet when they disappeared on such occasions, they generally returned when I opened my eyes. All these phantasms appeared to me in their natural size, and as distinct as if alive, exhibiting different shades of carnation in the uncovered parts, as well as different colors and fashions in their dresses, though the colors seemed somewhat paler than in real Nature. The longer they visited me, the more frequently did they return; and they increased in number about four weeks after they first appeared.

"I also began to hear them talk; they sometimes conversed among themselves, but more frequently addressed their discourse to me. Sometimes I was accosted by these consoling friends while I was in company, and not unfrequently while real persons were speaking to me."

In both the foregoing cases it is to be remarked that although the hallucinations were involuntary, and could neither be banished nor recalled at pleasure, their true character became speedily and perfectly known to the persons who suffered from them. In both cases bloodletting was found an effectual remedy.

The exercise of fantasy is a prominent feature in most forms of insanity, as those know who have listened to the amazing claims and wild vagaries of madmen. This is the natural result of that distraction and dissipation of energy, and that loss of the power of attentive judgment, which are the essential elements of mental derangement. The false beliefs of madness arise from the distraction and dissipation, just as the delusions of dreaming result from the suspension or reduction, of our mental vigor.

CHAPTER XLV.

THE POETIC IMAGINATION.

1. **IMAGINATION** is distinguishable from mere fantasy by reason of that special exercise of judgment which it involves. In imagination *the mind always aims to form for itself objects in the contemplation of which some end of pleasure, knowledge, useful direction, or practical influence may be promoted.* The elements of those conceptions which are presented by the suggestive power are chosen or rejected according to their fitness to serve the end. Hence the faculty of imagination, like that of reasoning, involves a voluntary control of our thinking powers. Dr. Brown imperfectly expresses this truth by saying that the higher imagination is a combination of association or suggestion with intention or desire.

The comparatively insignificant place which has been granted to imagination, in most metaphysical writings, is to be accounted for partly because philosophers have been mainly interested in those operations by which truth and knowledge are secured, and partly because there is not much in the theory of the imagination to exercise philosophical acumen and subtilty.

This faculty, nevertheless, is an essential part of the constitution of the mind. Were man's thoughts confined exclusively to memories of the past and cognitions of the present, together with such views of the future as can be obtained from accurate inference, life would be a dull affair indeed. But now bright hopes animate our efforts, lofty ideals present themselves for our realization, and gentle fancies soften the rough realities with which they mingle; thus we are solaced in the midst of cares, and are beckoned onward in the pursuit of noble ends.

Possessed by all men, but pre-eminently by some.

Although imagination belongs to all men, it is a gift granted to some in vastly more abundant measure than to others. For men differ more as to their mental than as to their bodily endowments. The distance between a stupid clown and a cultured, educated genius is greater than that between a feeble gentleman and a practised athlete. Persons remarkable for imagination commonly possess quick and lively sensibilities. This partly results from the vividness of their conceptions, but it also stimulates and increases their ability to form such conceptions; for this reason the natural difference of persons in imaginative power becomes greatly increased as their minds and characters develop.

The faculty of imagination sometimes works on its own account; that is, it creates scenes and objects simply for the satisfaction of surveying them. At other times its operations are subservient to purposes more remote than any included in this satisfaction. We cannot do better than to consider it, first in the one, and then in the other, of these relations.

The poetic imagination. The fancy.

2. That development of imagination which elaborates mental objects for the satisfaction of surveying them, may be distinguished as *the poetic imagination*. When exercised with little rational control, without any attempt at a serious and systematic work, and simply for the purpose of providing pleasing images, it is often called *the fancy*, — a name which implies that this is a mode of thought not far removed from simple fantasy.

The poetic imagination, again, with reference to two well-known developments of genius that depend upon it, may be subdivided into *the poetic imagination proper* and *the artistic imagination*.

Poetry and art are pursuits of a kindred nature, yet easily contrasted with one another. The thought of the former expresses itself in language; that of the latter is embodied in painting, music, statuary, and whatever other material things may be made to exhibit the pleasing and the impressive.

The sphere of poetry is vastly more extensive than that of art.

Language can utter, with wonderful exactness, whatever the mind conceives: every change and turn of events, every motive and thought, affection and desire, of the heart, can be made known in befitting words. But the productions of art, however skilfully constructed, set forth only the outer side of things, and leave more unsaid than they express. At the same time works of art, in appealing to our senses, and not to our minds alone, are better calculated than poetry to produce a strong immediate effect.

The objects which the poet and the artist endeavor to prepare for our contemplation are, in the first place, the beautiful and the sublime; *the former comprising whatever may be pleasant to contemplate either in itself or both in itself and its associations, and the latter being that which conveys the suggestion of power and greatness.* In addition to these objects, whatever may move and interest the heart is delineated. For, to use a phrase of Hamilton's, the productions of both art and poetry are "exclusively calculated on effect."

External conditions of poetry and art. The external conditions favorable for the development of one of these pursuits differ from those in which the other flourishes. Both require a time of comparative peacefulness, when the minds of men are not occupied with wars and civil commotions. But poetry delights in an age characterized by simplicity of life and manners, in which the spirit of men is unconventional and easily impressed, and in which the memory of great achievements and the desire to emulate them are fresh and vigorous. The poet then gives shape and expression to the sentiments which burn within his own breast and those of others. Art, on the other hand, waits for times of greater repose, and is roused to exertion when the extension of a cultivated taste, the facilities for artistic work, and the accumulation of wealth create the demand for meritorious productions, and encourage those whose genius can supply the demand. As a rule, the great poets in every country precede the great artists. We allow that the power of genius is wonderful in every age and in every condition of society; but without opportunity, even genius can accomplish nothing of value, and, in general, favorable times are needed for any grand achievement.

Versification, reason for. Poetic labor. It is noticeable that the poetry of every language employs versification, or rather is composed in lines of a length and accentuation more or less regular. This may have been adopted at first to assist memorization, but must be chiefly ascribed to a natural fitness of rhythmical language to be the instrument of poetical expression. The ear delights in that regularity of intonations which is produced by the observance of metrical rules, while a higher sense is pleased by the skill which makes the accentuation of the verse and the emphasis of the thought coincident with each other. These remarks may be illustrated from any well-composed poem. Let us take the following stanza from a hymn of Addison, —

"How are thy servants blest, O Lord!
How sure is their defence!
Eternal wisdom is their guide;
Their help, Omnipotence!"

or this, from another hymn by the same author, —

"The spacious firmament on high,
With all the blue ethereal sky,
And spangled heavens, a shining frame,
Their great Original proclaim."

These stanzas would lose much of their beauty if they were changed into the language of prose.

This leads us to say that the composition of poetry, even for those who are capable of it, is a more laborious task than is commonly supposed. Doubtless, when one is in the proper spirit, the work is not irksome; yet it involves earnest and persevering application. There is always that kind of effort which one puts forth in any business which deeply interests him. This view is confirmed by the experience even of those poets who have been most perfectly the children of Nature. Robert Burns says, —

"The muse, nae poet ever fand her,
Till by himsel' he learn'd to wander
Adown some trotting burn's meander,
An' no think lang;
Oh, sweet, to stray an' pensive ponder
A heartfelt sang!"

And the following passage from the correspondence of Burns proves that his songs were not hurriedly got up, but composed with the utmost care and application. 'Until I am complete master of a tune in my own singing," he writes, "I can never compose for it. My way is this: I consider the poetic sentiment correspondent to my idea of the musical expression, then choose my theme, compose one stanza. When that is composed, which is generally the most difficult part of the business, I walk out, sit down now and then, look out for objects in Nature round me that are in unison or harmony with the cogitations of my fancy and workings of my bosom, humming every now and then the air, with the verses I have framed. When I feel my muse beginning to jade, I retire to the fireside of my study, and there commit my effusions to paper, swinging at intervals on the hind legs of my elbow chair, by way of calling forth my own critical strictures as my pen goes. This, at home, is almost invariably my way."

Poetical exertions cannot be maintained with that regularity which serves a good end in ordinary business; creative genius must often wait till the muse is willing, — that is, till one's mind is filled with fresh fervor and activity; but still it is true that the work of the poet engages all the energies of his soul.

Moreover, after the song may have been first produced, the labor of revision and emendation equals that of the original composition. This task was diligently performed by the most famous poets of both ancient and modern times; and it has imparted to their productions a perfection which all succeeding ages must admire and emulate.

We need not discuss that exercise of talent which produces novels and similar works of fiction; it is of the same radical nature with the poetic faculty. But it appeals less to the sense of the beautiful and more to our curiosity.

The artistic imagination. Ideals. The true function of imagination.

3. The artistic imagination follows the same general methods and the same general aims as the poetic, and is distinguished from it by the fact that it is directed to a more specific work. The painter, the sculptor, and the composer of music aim to produce beautiful and engaging things by the employment of material means; and in order to do so, they form mental conceptions of the things which they would produce. Persons of ordinary gifts cannot make much progress in these pursuits. Originality in art calls for a great endowment of taste and talent. The "Nascitur non fit," of Horace, applies even more emphatically to the artist than to the poet. Assiduity may make a respectable copyist; only Nature produces the creative genius. Hence those who have attained distinction by artistic achievements have found themselves attracted to art by a power which has compelled them to reject and forsake every other occupation.

That imaginary object which the artist endeavors to realize is called his *ideal*. In general, *ideals are objects which one imagines and endows, to the best of his ability, with every excellence suitable to their nature, and with which, as standards, he compares things really existing or in the process of production.* While these concepta belong to every mode of the productive imagination, they are most consciously employed in the arts of painting and sculpture. The ideals of the poet and of the musical composer are immediately embodied in their verses and melodies; those of the scientific thinker are surrounded by many other thoughts which equally occupy his attention. The plans of the ordinary mechanic or man of business are but roughly sketched, and must be modified according to the course of circumstances; our conceptions of duty are very abstract, and are rather referred to than contemplated; but the designs of the painter and the sculptor are long retained in memory as the objects which they desire to express in their productions. At the same time it is evident that ideals are formed and followed, not only by all artists and poets, but also by every one who imagines for himself things excellent and perfect.

The doctrine which sets forth the origin and character of ideals is one of very general bearing. *The essential point in this doctrine is that ideals are entirely new creations or constructions of the mind, and are not merely copies of objects presented to us by Nature.* Genius conceives of things such as never existed, and produces objects more beautiful and perfect than any to be found in the natural world. That theory which asserts Art to be simply a reproduction of Nature cannot be sustained The Venus of Milo and the Apollo Belvedere are not copies of any forms that ever were seen, but are more perfect than any. The wonderful music of Mozart, Beethoven, and Mendelssohn is the expression of harmonies never heard before, and whose birthplace was within the soul of the composer. It is the duty of Art to improve upon Nature. Even Eden, when Adam was put there "to dress" the garden, was not so perfect that it could not be improved by skill and care. Art reduces the redundancies, supplies the defects, heightens the charms, and unites the attractions which are to be found in natural scenes and objects.

Therefore it is quite inaccurate to say that the function of the imagination is merely to recompose, in some new way, objects or parts of objects which have been previously perceived. *The work of this power includes not simply the partition and composition of objects, but that more searching and perfect separation and combination which we call analysis and synthesis*, and which, in their fullest development, become abstraction and conception. Dr. Porter rightly remarks: "The lines and shapes of grace which have been copied in marble or drawn upon canvas, in respect of delicacy of transition and ease of movement, far surpass those of any living being or actually existing thing. They are suggested by, but are not copied from, any such beings or things. The story that the Grecian painter assembled from every quarter the most celebrated beauties, that he might borrow some charm from each, could never have been true."

When Professor Stewart says that Milton did not copy his Eden from any one scene, but selected the most beautiful features from the most beautiful scenes with which he was familiar, we are to understand that, however this or that prospect may have contributed some grace to the imaginary Eden, this was only by furnishing a fruitful suggestion, in which the plastic mind of Milton found material for its work. That work itself was a synthesis of elemental conceptions in which shapes and colors, sizes and distances, sounds and motions, uniformities and diversities, were first modified at will, and then combined into one harmonious scene, so as most to please the taste.

This wonderful power, which out of old material makes things wholly new, is yet more evidently displayed in that description which Milton gives of Satan's dreadful home; where

> "Round he threw his baleful eyes,
> That witnessed huge affliction and dismay,
> Mixed with obdurate pride and steadfast hate.
> At once, as far as angels ken, he views
> The dismal situation waste and wild.
> A dungeon, horrible on all sides round,
> As one great furnace, flamed. Yet from those flames,
> No light; but rather darkness visible
> Served only to discover sights of woe.
> Regions of sorrow, doleful shades, where peace
> And rest can never dwell; hope never comes,
> That comes to all: but torture without end
> Still urges, and a fiery deluge, fed
> With ever-burning sulphur unconsumed.
>
> . . . .
>
> There the companions of his fall, o'erwhelmed
> With floods and whirlwinds of tempestuous fire,
> He soon discerns."

This description was not copied from any scenes that Milton ever saw. If one can understand how ideal creations are thus formed, different in every part from objects previously perceived, and surpassing them in excellence or beauty or grandeur, he has mastered the principal point in the philosophy of the imagination.

Law limiting the work of poetry and art. Conditions of success.

But while originative genius is not merely a reproductive and compositive, but a plastic and creative, power, it is to be noted that poetry and art are under the necessity of maintaining a certain analogy with Nature. They must take those scenes and objects which are witnessed in the real world as the basis of their new creations. Ideal excellence can be obtained only by the imaginative development of that which really exists, and it can affect the soul only as having a certain verisimilitude — that is, as having an essential agreement with reality—in those features which are to engage our admiration and excite our sensibilities.

The sphere of poetry and art, therefore, being confined to classes of scenes and courses of events similar to those which actually affect our lives, is not so extensive as that which we may assign to the imagination simply.

Hence it is plain that natural ability is not of itself sufficient for success in these pursuits. The mind must be stored with knowledge suitable to furnish suggestion in the kind of work that is to be performed; for this reason the productions of the most original genius are always formed upon previous experience and acquisitions. The following remarks by a great painter, on this point, are worthy of remembrance. "Invention," said Sir Joshua Reynolds, in a discourse before the Royal Academy, "is one of the great marks of genius; but if we consult experience, we shall find that it is by being conversant with the inventions of others that we learn to invent, as by reading the thoughts of others we learn to think. It is in vain for painters or poets to endeavor to invent without materials on which the mind may work, and from which invention must originate. Nothing can come of nothing. Homer is supposed to have been possessed of all the learning of his time; and we are certain that Michael Angelo and Raphael were equally possessed of all the knowledge in the art, which had been discovered in the works of their predecessors."

The influence of art and poetry.

We need not dwell on the humanizing and elevating influence of poetical and artistic pursuits upon the character of any people who may cherish them. The better productions of imaginative genius awaken the nobler susceptibilities of our nature, and urge us to the attainment of all honorable possibilities. They exert an influence greatly to be desired, both in its public and in its private operation. In the ruder ages of society,

"The sacred name
Of poet and of prophet were the same;"

the bard was regarded with religious reverence. "Among the Scandinavians and the Celtæ," says Professor Stewart, "this order of men was held in very peculiar veneration; and accordingly it would appear, from the monuments which remain of these nations, that they were distinguished by a delicacy in the passion of love, and by a humanity and generosity to the vanquished in war, which seldom appear among barbarous tribes, and with which it is hardly possible to conceive how men in such a state of society could have been inspired, but by a separate class of individuals in the community who devoted themselves to the pacific profession of poetry."

The influence of the works of genius was illustrated also in the life of the ancient Athenians. "Among the Greeks," says an eloquent writer, "wherever the eyes were cast, the monuments of glory were to be found. The streets, the temples, the galleries, the porticos, all gave lessons to the citizens. Everywhere the people recognized the images of its great men; and beneath the purest sky, in the most beautiful fields, amid groves and sacred forests, and the most brilliant festivals of a splendid religion, — surrounded with a crowd of orators and artists and poets, who all painted or modelled or celebrated or sang their compatriot heroes, — marching, as it were, to the enchanting sounds of poetry and music that were animated with the same spirit, — the Greeks, victorious and free, saw and felt and breathed nothing but the intoxication of glory and immortality."

In modern times poetical and artistic productions do not exert so great an influence as they once did. Philosophy, science, history, and the practical pursuits of an advanced civilization engross the minds of men, and render them less susceptible to æsthetic influences. Nevertheless it is the part of wisdom to cherish the poet and the artist, and to encourage labors which, when rightly directed, tend to the elevation and refinement of our race.

CHAPTER XLVI.

THE PHILOSOPHICAL IMAGINATION.

1. WE now turn to those uses of the imagination which are less exclusively connected with its own nature, and which do not belong distinctively to the reproductive phase of thought, but must be regarded either as occupying a middle ground or as forming parts of the discursive phase. With reference to these uses, three different modes of the imagination may be distinguished and characterized. They may be named the *speculative*, or *scientific*; the *practical*, or *ethical*; and the *incentive*, or *motive*.

Exercising the first of these, we form conceptions of fact or possibility, so as to assist our understanding of truth; using the second, we fashion plans and ideals for our practical realization; and employing the third, we stimulate our desires by placing before them definite aims and aspirations. The practical and the incentive imagination are fully considered in ethical writings, and in discussions relating to the various forms of human motivity and effort. Our present study therefore may properly be limited to the philosophical imagination; this specially belongs to the domain of mental science.

Those who are accustomed to regard scientific discovery and invention as the peculiar and crowning work of man's reasoning faculties, may be surprised to hear that success in these labors depends greatly on the exercise of the imaginative power. We naturally surrender the ideal world to Homer and Virgil, Shakspeare and Milton, Dickens, DeFoe, and other kindred spirits; we regard Aristotle, Euclid, Kepler, Newton, Davy, Faraday, Agassiz, and the like, as men whose minds are wholly conversant about fact and reality.

But the truth is that philosophic investigation, which discovers the laws of Nature, and scientific invention, which discovers the modes in which these laws may be usefully applied, can make no progress without a vigorous employment of constructive and creative thought. This may not ordinarily be called imagination; it is certainly to be distinguished from that exercise of genius which the poet displays; yet it is of the same generic nature with this, and differs from it only because its operation is modified and controlled in the interest of a peculiar end, — namely, the rational pursuit of truth. We therefore discuss the scientific imagination in connection with the poetic, and regard both as developments of that one comprehensive faculty which has been called the productive imagination.

The scientific compared with the poetic imagination. Philosophical invention.

At the same time we need not adopt an extreme inference from this doctrine, which some make. It has been taught that philosophic is so nearly allied to poetic talent that the same man may be expected to distinguish himself in both lines of effort, or at least to have the ability to do so. The philosophic imagination endeavors to form correct conceptions of the working of causes as these operate in Nature, so that, by means of such conceptions, the operations of Nature may be anticipated and understood. In this mode of thought we are at liberty to imagine only what may naturally exist or happen under conditions which may naturally exist. We build upon fact, and employ the known elements and laws of actual existence so far as these may be applicable; and where they no longer apply, we still follow, as closely as possible, the analogy of Nature, and carefully shun whatever may conflict with real possibility. The poetic imagination, on the contrary, regards possibility only so far as not to offend by evident absurdity, and seeks conformity to Nature only in those features which may excite our sympathy and interest. Philosophic genius cares neither for the beautiful nor the affecting, but for the true and the probable; it may even co-exist with a very moderate sense of what is tasteful and pleasing; it avoids the weakening of scientific discourse by much æsthetic illustration. But the spirit of poetry delights in the graceful, the beautiful, the touching, the wonderful, the sublime, and aims at no other end than the production of such objects. It is plain that the disposition and habit of mind proper to the philosopher differ from, and even somewhat conflict with, those characteristic of the poet. A conjunction of the two forms of genius in one mind is not a thing to be expected, but rather the reverse; and, in point of fact, it would be hard to find any instance in which the same person was eminent both as a poet and as a philosopher.

2. That form of imagination employed in speculative thought is sometimes known as philosophical invention, the term "invention" in this phrase being used in a wide sense, so as to include purely theoretical conjecture, as well as that which looks towards practice. This mode of imagination is always completed by supposing the object of it to be fact, — that is, by distinctly uniting the idea of existence with that of the thing invented. Therefore the products of it, commonly, and with reference to their use, are called suppositions. For the rational faculty deals with, and conceives of, things only as subject to the laws of actual existence.

Different modes of philosophical invention may be distinguished according to the different ends for which suppositions are employed. *These ends are three in number, — first, the discovery and ascertainment of truth; secondly, the application of truth, in deduction from things possible, and in useful invention; and, thirdly, the explanation and illustration of truth.* These aims are not pursued in separation: they are so related that the attainment of one is often an important step in the prosecution of another; yet a special exercise of imagination, which belongs to each, may be distinctly conceived.

The imagination of discovery. Hypothesis and supposition distinguished and defined.

The philosopher is chiefly concerned with that mode of invention which seeks the discovery of truth. This is that which he himself employs; it is that, also, which calls most for elucidation and discussion. The thought constructions to which it gives rise are distinguished from other suppositions by the name "hypothesis." Originally, the terms "hypothesis" and "supposition," as their formation indicates, had the same meaning. They denoted those constructions of the imaginative power which we employ to explain phenomena, and in which causes and conditions are figuratively *placed under* those observed facts which are believed to rest or depend upon them.

This specific meaning is now retained by the word "hypothesis," which signifies a supposition used for the purpose of explaining phenomena, and, in connection with that, of showing its own truth or probability. For any hypothesis which rationally accounts for fact may be true; and if it be the only hypothesis by which the fact can be explained, it must be true. Supposition, on the other hand, has assumed the more general sense of imagining a thing to be fact, with reference to something which would follow if it were fact, whether that thing be the explanation of phenomena and the ascertainment of causes or not. When we speak of a supposition, we emphasize the conceived existence of the thing supposed; but in the idea of an hypothesis, the emphasis rests on the explanatory relation of the thing supposed to the facts immediately perceived. These remarks exhibit the reason on account of which a scientific conception, even though designed for purposes of explanation, is not commonly called an hypothesis, unless its explanatory value be immediately taken into account.

We should note, in passing, that the peculiar and specific meaning of the noun "hypothesis" is not always retained by the adjective "hypothetical." An hypothetical case is simply a supposed case; an hypothetical syllogism means a syllogism in which one fact is supposed as the antecedent, not as the explanation, of another.

The twofold use of hypothesis.

While every hypothesis has a double end in view, — namely, to account for facts, and to ascertain whether the supposed cause exist or not, — some hypotheses aim more at the former, and others at the latter, of these ends. The famous speculation of Laplace respecting the origin and movement of planetary bodies is interesting chiefly as an explanation of phenomena. He conjectured that the atmosphere of the sun originally extended beyond the present limits of the solar system, and that planets were formed by the cooling and condensation of successive rings of fiery vapor, their orbital motion being caused by a combination of their centrifugal force with the centripetal attraction of the sun, and their diurnal motion by similar forces operating within each separate mass of matter. Scientific theories, in general, are principally valuable as explanatory of fact.

On the other hand, those hypotheses which are made in the course of judicial proceedings are mainly intended to show the truth or falsehood of the hypothesis itself. In a trial for murder, it was shown that a certain money-lender was discovered one morning in a wood beaten to death, and that this individual and the prisoner had entered that wood together the previous evening. It also appeared that the accused was a person of bad character, and had been a debtor to the murdered man in a considerable amount. The prosecution advocated the hypothesis that the prisoner had committed the crime in order to free himself from debt. The counsel for defence argued that the murder *might* have been committed by some other man. The jury found that the facts could be explained only on the hypothesis of the prisoner's guilt; and the man was executed. In this case the important question concerned, not the explanation of fact, but the correctness of the hypothesis.

Theory defined and characterized.

Those systematic views of phenomena and their conditions, as mutually related, which hypotheses enable us to form, are called theories. A theory differs from an hypothesis in being more comprehensive, — it includes, in one view, both fact and explanation. The conception of it, also, is less suggestive of unreality. One's theory of a phenomenon is a view confirmed by investigation and accepted with more or less confidence. His hypothesis respecting a phenomenon is a conjecture yet to be tested, and which may prove incorrect. While, therefore, these terms are allied, and may sometimes exchange places with each other, there is a difference. In particular, after an hypothesis may have been fully verified, we incline to speak no longer of it, but of the theory established by it

Before Newton's time, three laws of planetary motion had been discovered through the observations of Kepler. These were that the radius vector of a planet describes equal areas in equal times, that the path of every planet is an ellipse, and that the squares of the times of revolution of the different planets vary as the cubes of their mean distances from the sun. Newton conjectured that a force directed towards the centre of the sun, and varying inversely as the square of the distance from that point, would produce these phenomena; and he was able to demonstrate that this was the only force which could produce them. Therefore, now, we speak not of the Newtonian hypothesis, but of the Newtonian theory, of solar attraction, or of universal gravitation.

Scientific idealization. The reason of it.

At the same time any digested view of fact, or of what may be assumed as fact, considered as united with its explanation, is properly termed a theory; and, indeed, the imaginative character of our hypotheses is often remarkably exhibited in those theories which originate from them. For not only many theories have been constructed wholly by the imagination, with no aid from reason, and no reference to the analogy of Nature, but — what is specially to be noted — many even of those theories, in which the laws of existence are correctly set forth, present idealized objects and operations, such as are never to be met with in reality.

This separation of even correct hypothesis from literal fact, takes place whenever we desire to have *an abstract or independent conception of the proper effect of some law.* The powers of Nature do not work separately, nor do they always operate under the same conditions. Each plays its proportionate and variable part in producing the complex actualities which we see. In order to comprehend some simple law, we must conceive of a certain power acting alone under given conditions; and thus we form the conception of a phenomenon which never really takes place, yet which truly sets forth the operation of an existing law. We may conceive of an iron ball at rest in space, or driven forward into empty space, and thereafter free from the influence of every force save its own inertia or momentum. Then, with the aid of these conceptions, we state the law that any material body will forever maintain its condition of rest in the same place, or of motion in a right line and at the same rate of velocity, if it be not influenced by some external power. No such phenomena as these are ever witnessed; yet the phenomena actually observed justify our ideal conceptions and the law which they enable us to enunciate. The actual motion and rest of bodies obey this law, so far as the operation of other laws permit; and they can be accounted for by the combination of this law with others.

This power of forming and using ideal theories throws light on a class of objects sometimes considered in scientific thought, which differ, in point of perfection, from any that have ever been met with. The conditions of a law affecting any class of objects lie partly in the nature of the objects themselves; therefore the absolute, or perfect, exemplification of the law may call for a perfection in the nature of the object which is nowhere to be discovered. A perfect reflector which absorbs none at all of the light which falls upon it, or an absolutely opaque body through which no light can find its way, or a substance so transparent that light can pass through it without any even the slightest obstruction or diminution, has never been found. Yet such objects can be imagined; and laws of optics, which apply approximately to real cases, can be formulated with reference to these imaginary standards. For realities sometimes approach so near perfection that no appreciable error follows from regarding them as perfect;

and in other cases, when the imperfection seriously affects the result, this can be estimated and taken into account in our calculations.

The ideals of geometry. A difficulty explained.

The ideals of geometrical theory have that perfection to which we now refer. The scientific conceptions of the point, the straight line, the plane, the curved surface, and the regular solid set forth things of a finer quality than any which present themselves to the senses. The ordinary definitions of some of these ideals have been the occasion of perplexity both to metaphysicians and to those mathematicians who have critically examined their own conceptions. In particular, the point, the line, and the surface, as described in geometry, are impossible entities. The existence of that which has neither length, breadth, nor thickness, but position only, or of that which has length, position, and direction, but no width and no thickness, or of that which has length and breadth but no thickness or depth, is inconceivable. Thus, apparently, geometry sets out by asking us to accept absurd conceptions.

The difficulty here presented cannot properly be ascribed to the imaginary perfection of the entities considered. There is nothing impossible or absurd in imaginary perfection. The difficulty originates in connection with the peculiar scientific use for which the ideals of geometry are intended, and which they serve. Yet, as it could have arisen only where such ideals were employed, it may be considered in the present connection. A solution of it is offered in the two following statements: —

Geometry concerned with attributes rather than with bodies.

First, strictly speaking, geometrical science is not concerned with any independent entities which can be called points, lines, and surfaces, but only with those inherent parts of solid bodies which these names may indicate, or rather — to speak more strictly still — with the characteristic attributes of these parts. A surface, as its name signifies, is properly the boundary of a solid body; a line is the edge at which one surface meets with another; a point is the termination of some sharp projection of the solid; the first of these is considered only with reference to its superficial extent; the second with reference only to its length and course; and the third with reference to its position only. Even the solid body itself, though possessing an independent or substantial existence, is thought of only so far as it has shape and size, so that, in truth, the shape and size of the solid, rather than the solid itself, are considered. For in geometry solidity means simply space-filling extension.

This fact — that the proper objects of geometrical thought are not independent entities, but attributes of solid bodies or of their inherent parts, helps to explain the character of geometrical definitions. Though no surface can exist without solidity, we can think of its breadth without thinking of the solidity beneath it; though no line can exist save as a slender solid strip, we can think of its length without thinking of the solidity accompanying that; and though no point can exist save as the terminal part of a line or sharpened body, we can think of its position, or of the position of the centre of it, without thinking of its solidity. Therefore, in a science which concerns itself with surfaces, lines, and points only that it may consider their characteristic attributes, it is natural that these entities should be spoken of as if they possessed these attributes alone, although, as we have said, these attributes cannot exist, nor even really be conceived to exist, in separation from each other and from solidity.

Geometry uses auxiliary conceptions.

This mode of speech will be further justified by the second statement which we have to make. This is that ideal conceptions of lines, points, and surfaces, as separate entities, are used by us as supports of geometrical thought. The mind dislikes to conceive of mere attributes, even though these may be the proper subjects of its consideration; so, instead of attributes simply, it conceives of objects as having them. In this way one's conceptions are made more to resemble fact. But in the combinations of thought it is needful that each attribute, or each system of attributes, should be allowed its own proper value and effect; therefore we fashion for ourselves objects in which all other attributes than those specially given to them exist in the lowest conceivable degree. In short, we imagine entities which have no appreciable force or value, except in those particulars with which we have characterized them.

Hence geometrical ideals are things more perfect for the purposes of thought than any that can be made or found. But they are not absurdities. The point occupies space, though it is infinitesimally small; the line has width and thickness, but it is of the utmost conceivable attenuation, and is without the slightest roughness or irregularity; the superficies is a film of indescribable thinness, and absolutely continuous; while the solid is bounded by such surfaces, and is free from all interstices, so as fully to fill the space assigned to it. These conceptions involve no absurdity; they are consistent with the necessary laws of being. But the size of the point, the width of the line, the thickness of the surface, are so insignificant that they can be disregarded in reasoning. And the solid, being of perfect density, is such that it is measured exactly by the space it occupies.

When, therefore, the geometrician says that the point has position only, the line length only, and the surface breadth only, and identifies the solid with the full possible content of a given space, we are to understand that *these ideals are such as may simply represent certain attributes*, and such that by means of them we reason, more easily than we otherwise could, regarding the position, length, superficial extent, and solid contents of material objects.

The formation and use of scientific hypotheses.

The manner in which men of genius form hypotheses and scientific theories is essentially the same with that in which we form suppositions to account for facts which interest us. The phenomenon to be explained is attentively studied, and is compared with similar phenomena whose causes are known. Thereupon a cause is conjectured similar to some known cause or causes, but differing from it or them in some way to account for the peculiarities of the case in hand. But often an hypothesis when made is found unsatisfactory. Deductions from it conflict with some of the observed facts, or with facts not previously considered. Then that conjecture is abandoned for another, constructed in a similar way, but either wholly or partially different. Another process of trial takes place with this hypothesis; and so the work goes on till either hope of discovery is given up, or an hypothesis is framed which satisfactorily explains the facts. Then, if the cause assigned by this supposition be found really to exist and operate, or if, in any other way, we can prove that no other cause can possibly produce the results to be accounted for, the hypothesis becomes a doctrine fully received and confidently held. Such has been the history of almost all important theories.

The second use of hypotheses.

The use of philosophic invention, in which we suppose things to exist for the purpose of deducing from them imaginary consequences, is next in importance to that which aims at the explanation of facts and the discovery of causes.

Indeed, the formation of hypotheses or conjectures would be comparatively ineffectual toward the ascertainment of truth if these could not be tested by a deductive process. This is done when one combines the hypothesis to be tested with some known fact or principle, and then marks the legitimate inference. For he can now inquire whether this inference agrees with the various facts known to him which relate to the subject in hand, or with such facts as he can discover, or with the results of his experiment, — that is, with such facts as he can create. If there be agreement, the hypothesis is confirmed; if there be conflict with fact, it is overthrown. Thus suppositional inference is a test of hypothesis.

But it has uses more immediately its own; because the full significance of any scientific truth cannot be understood unless we combine it with one supposition and another, so as to perceive its different possible bearings. For example, the importance of solar light and heat cannot well be estimated, unless we should suppose them suddenly to cease to illuminate and warm the earth, and should consider what midnight darkness and frigid death would then enwrap all beings that are living now.

Useful invention.

A yet more notable use of imagination, in connection with a deductive process, is exhibited in useful contrivance. Such was the invention of the air-pump, by Otto Guericke; of the thermometer, by Sanctorius; of the reflecting telescope, by Gregory; of the safety-lamp, by Sir Humphry Davy; of logarithms, by Napier; and of the Calculus, by Sir Isaac Newton. The steam-engine, the cotton-gin, the electric telegraph, the telephone, the daguerreotype; and machines for carding, spinning, weaving, knitting, sewing; for type-setting and printing, for mowing, reaping, threshing; and many others employed in modern civilization, — are the products of that invention of which we now speak.

For invention, in the narrower sense, indicates only one species of philosophical imagination or invention, and signifies the work of discovering methods by which laws and instrumentalities already known may be made to serve useful ends. This work is similar to that of discovering the causes and conditions of phenomena, but it is more completely dependent on the constructive power of the imagination. That conjecture which uses hypotheses for the purpose of discovering antecedents starts out from the perception or assumption of facts; but this invention, which aims to realize an end through the use of means, has only a possibility in view.

Moreover, causes may often be found by simple inquiry and search, without the aid of supposition; but mental combination alone can afford us any hope of the production of a new agency.

Sometimes the discovery of a useful adaptation may appear to result from chance; but it seldom or never results from chance alone. Ordinarily, the inventor must try many combinations, one after another, without producing the effect hoped for. But if the end be a possible one, his work makes progress. Every new attempt reduces the likelihood of failure in the next, and increases the probability of success. But, generally, some uncertainty still remains; so that in most instances the end seems attained or suggested, at last, by some fortunate circumstance, and has the appearance of being found rather than achieved. Hence it is that the term "invention," which originally signified only discovery, has come to be applied to the laborious process of contrivance, and especially to the contrivance of useful instrumentalities.

Imaginative illustration. That exercise of the philosophic imagination which furnishes illustrations of truth may be passed without extended discussion. It is a fact that a principle is sometimes better stated and understood by means of suppositions and similitudes than it can be by means of direct statement, or even by describing any actual example of its operation.

The right illustration of truth is a work of less difficulty than the formation of wise hypotheses, or the invention of useful applications. Yet it involves care and skill. An illustration which does not truly present the point to be considered, only confuses the mind; and an illustration which sets forth with equal or greater prominence some other point also, may be the cause of positive error.

CHAPTER XLVII.

THE RATIONAL FACULTY.

1. THAT power of thought which manifests itself prominently as the controlling element in the rational or discursive phase of intellect, is commonly known as reason.

The common definition of the rational faculty. Most logical and metaphysical writers define this faculty as that by which the mind forms general notions and uses these notions in inference and in other operations pertaining to the perception of truth. This definition does not appear to be correct. *On the one hand, general notions are employed in operations which belong to the perceptive and reproductive faculties; and, on the other, certain exercises of the reason do not involve general notions.* The cognitions of acquired perception, which are common to man and the brutes, and are not exercises of reason, involve the instinctive use of rules of inference, which rules are of the nature of general notions. In short, several operations which are often described as belonging to the rational faculty exclusively, occur in mental phases which are contrasted with reason. And the doctrine that every exercise of reason involves the use of general thought cannot be sustained. It is now commonly admitted that trains of geometrical ratiocination can, and often do, take place from the simple inspection and consideration of diagrams, and without the intervention of universal principles. Yet such reasonings are among the purest products of the rational faculty.

Locke's definition.

Locke says that reason is "that faculty whereby man is supposed to be distinguished from beasts, and wherein it is evident that he much surpasses them." To make this definition explicit and satisfactory, we must say "that faculty of perception and judgment;" for man surpasses the brutes in imagination as well as in reason.

As Locke's "Essay" was directed to the consideration of the understanding, the limitation we have suggested was doubtless in his mind. Indeed, this is evident; for he goes on to describe reason as the faculty which first distinctly ascertains the grounds for belief or knowledge, and which then applies them so as to obtain either certainty or probable conviction.

Kant's employment of the term "reason."

Other authors — such as Kant, Coleridge, and Morell — give the name "reason" to a faculty which they distinguish from the understanding, or reasoning power, and by means of which we immediately possess ourselves of the necessary elements or eternal principles of truth. We can discover no good ground to believe that we have any such independent faculty, and therefore shall not dwell on this meaning of the term.

Nor need we discuss those teachings which make reason something impersonal, separate from the soul, and communicated to it, — a revelation of the Absolute Intelligence! Philosophers should leave such language to orators and poets.

Reason is not a single power, but a peculiar endowment of mental ability.

An exact definition of the rational faculty can be obtained only by a careful scrutiny of that conception of reason which those employ who use the term without making it the expression of any philosophical theory. An examination of this usage, together with a consideration of the mental facts immediately related to it, will lead to the following results: —

In the first place, reason is not a single power, but rather a collection of powers which operate in conjunction with each other. Both thought and belief, together with attention, association, analysis, synthesis, abstraction, conception, generalization, specification, — in short, all the intellectual powers, whether primary or secondary, enter into this complex faculty.

In the next place, reason involves a peculiar endowment of mental ability. The powers which this faculty employs are employed by our other faculties of perception, but in lower degree. Man is said to be distinguished from the brute by his reason, and undoubtedly the development of reason in man is far beyond what any brute exhibits; yet a weak and limited degree of reason cannot be denied to some of the brute creation, for we call any perception rational which is the product of some thought and study.

Again, we notice that *the special ability out of which reason springs is manifested in connection with both the primary powers of mind.* First of all, there is a peculiar power of *comprehension*, whereby a collection of things naturally related, whether present or absent, actual or possible, can be thought of at once, so that the things presented in actuality often occupy but a small portion of one's rational attention; and, secondly, there is a peculiar power of judgment, or *penetration*, whereby the relations of things, and especially their necessary relations, are perceived, and so the mind discovers the inner nature of things and their more remote causes and consequences. By reason the savage is instructed to shoot the poisoned arrow, and is informed that when wounded by such a weapon he must die. The mere brute cannot fashion such an instrument and anticipate its effect.

It is further evident that this peculiar ability of comprehension and penetration which we have now described *affects the operation of the secondary powers*, so far as they contribute to that increased perception of truth which is the work of reason. Rational analysis is thorough, exact, and definite. The synthesis of reason is comprehensive, unites parts or elements by complex and important relations, and forms conceptions wholly its own. The associative or suggestive power of a rational thinker chooses from a wider range of ideas, and selects those of special significance and value; while abstraction and generalization, which are hidden factors in the lower modes of cognition, are marked features of rational thought. From these causes operations arise — such as the definition and division of notions, formal predication, the systematization and arrangement of topics, and analytical connected argument — which are wholly peculiar to rational beings.

This leads to the remark that the exercise of reason exhibits *a greater voluntary control of our thinking powers* than is to be seen in connection with our other faculties. Some might even conjecture that reason originates in a peculiar ability to direct one's mental powers to the accomplishment of their proper ends. But this would be a very imperfect view. The truth is that the will shows more direction because reason both furnishes powers capable of being guided to a peculiar efficiency and also indicates the ends and methods of this guidance. The increased mental grasp is of itself sufficient to account for the phenomena without supposing any simultaneous and independent addition to the strength of the will.

Reason, or the rational faculty, defined.

Reason therefore may be defined as that comprehensive and penetrating faculty by which man obtains a distinct knowledge of the nature of things, and can discover objects and the relations of objects which lie beyond the sphere of his immediate or acquired perceptions, — a faculty by which we not only analyze and perfect such knowledge as is merely presentational or of easy and habitual inference, but also add to this knowledge by the power of widely embracing conception and far-reaching judgment.

The division of reason into the intuitive, or practical, and the discursive, or speculative.

The older English writers divided the exercise of reason into *the intuitive* and *the discursive*, in this following some of the schoolmen. In the fifth book of "Paradise Lost," Milton makes the angel Gabriel say, in his address to Adam, —

> "The soul
> Reason receives, and reason is her being,
> Discursive or intuitive: discourse
> Is oftest yours; the latter most is ours;
> Differing but in degree, of kind the same."

The intuition referred to in such language as this does not signify, what the primary meaning of the word might suggest, an absolutely immediate or presentational cognition; as Milton says, *these two modes of reason differ, not in kind, but in degree.* We are here taught that there is an exercise of reason which resembles literal intuition in being without a process, or, to speak more accurately, in being without any deliberate and conscious process. In this mode of reason, because either of intellectual superiority, as might be supposed in the case of angels, or of acquired and habitual skill, as in the case of human beings, the action of the mind is instantaneous, or nearly so; the whole nature and all the bearings of some fact or collection of facts are seen and understood by a single glance.

This kind of perception is often exhibited by men in the practical affairs of life; and with reference to this, the faculty which exercises it might be called the practical reason. The other mode is slower, and more under the conscious direction of the mind. Its suggestion of thought is in answer to continued inquiry; its analysis scrutinizes each element in succession; its synthesis is deliberate systematization; its inference considers, one after the other, antecedent, consequent, and the connection between them; in short, the energy of its attention is directed in turn to all the several elements of an act of knowledge, so that the nature and use of each may be properly apprehended. On this account this mode of reason has been called the discursive. It has also been styled the speculative, and under this title may be properly contrasted with that practical mode of reason which we have just defined.

But while reason is divided into the intuitive and the discursive, or the practical and the speculative, these are radically the same power, and differ only in the mode of their operation. The elements and methods of thought and of belief are the same in both. Intuitive reason may be compared to a practised military genius who perceives at first sight all the capabilities of a field of battle; discursive reason is the less experienced and it may be less talented commander, who surveys each part of the field in succession, and forms his plan of action gradually.

Such being the case, it is plain that the term "reason" cannot be exactly replaced by the expression "discursive faculty," one form of reason being in a sense intuitive. Yet reason may properly enough be called the discursive faculty, provided only it be understood that such language is adopted, because discourse is the more prominent mode of reason, and that alone in which the nature and workings of this power can be directly seen and studied. The intuitive exercise of reason is too rapid for either contemplation or control; it can be understood and influenced only through a knowledge of the nature of rational discourse and of the rules by which this should be regulated. The philosophy of reason must mainly concern itself with the discursive development. But in speaking of reason as discursive, we must guard against misapprehension.

The reason and the understanding identical.

In this connection let us notice an unwarranted distinction which has been made between the reason and the understanding. Some have confined the former term to what we have called the intuitive reason, and have assigned the latter to the discursive faculty; while others, adopting an opposite use of language, have given intuition to the understanding and discourse to reason. The fact is that both terms indicate the same thing, though under different points of view. The designation "reason" is derived from the essential work of the faculty, — that is, from that perception and collation of things and their relations (*res*, *reor*) whence our higher knowledge takes its rise; while the name "understanding" springs from a reference to the result of the foregoing perception, whereby one figuratively *stands under* the facts he has considered, — that is, below their superficial appearance and among their causes. This result is directly indicated by the verb "to understand," and therefore the noun "understanding" more immediately suggests that discursive faculty by the use of which, ordinarily, one consciously attains to rational intelligence. To the common mind the term "reason" is without this suggestiveness. But that both terms have essentially the same application is chiefly evinced by the fact that the phenomena ascribed to both faculties, when sifted and explained, call only for the existence of one faculty.

The rational faculty, or reason, distinguished from the rational phase of thought.

Such is reason. We may now inquire whether the rational, or discursive, phase of thought, as distinguished from the rational faculty, should be held to include every mental operation in which reason participates; or should it be *confined to those in which reason is the prominent and controlling factor?*

If we adopt the former alternative, we must allow the rational phase to include every exercise of the productive imagination, because this imagination constantly employs the reason and judgment. But it will contribute better to clearness of conception and statement if we limit the discursive phase to exercises of mind which are distinctively logical, whose proper purpose and result is the attainment of truth. This course will render more defined the distinction between the reproductive and the rational phase of intellect, and will agree with that frequent mode of conception according to which complex objects are named and distinguished with reference to their preponderating character.

The rational phase should include *every mental activity in which the ascertainment and understanding of truth is the main purpose and result of the employment of reason;* while those rational operations which are simply subordinate parts in the work of the creative imagination may be relegated to the reproductive phase. And thus, as certain modes of scientific imagination may be claimed for the rational, so certain plastic exercises of reason may be granted to the reproductive, intellect.

Three necessary forms of rational thought: the notion, the judgment, and the inference.

2. The elemental powers from which reason is constituted are the same with those which enter into our lower perceptive faculties, and have been discussed as the primary and secondary powers of mind. In treating of them much matter was introduced which psychological writers heretofore have placed under the head

of the rational faculty. This order has not been adopted in ignorance of the fact that *notions, judgments, and inferences are the three generic forms of discursive thought;* but it has been our desire to emphasize the doctrine that these modes of activity belong to every phase of mental life, and become distinctively rational only when reason may have conferred upon them some of its own superiority. The correctness of this position will become apparent if we consider briefly the development of these three forms of thought under the operation of rational intelligence.

The mere generalization of a conception does not call for any special strength of mind. A general notion in itself is simply a partial and indeterminate kind of thinking, and may be formed spontaneously and unconsciously. Within a certain sphere of thought it is not beyond the intellect of the brute. Only those notions are distinctively the products of reason which arise from intentional analysis and abstraction, or rather from a conscious determination to know and understand. *Rational conception originates in the clear analytical perception of things, and employs generalization only incidentally.* It takes place in the first instance when some individual object — a book, an inquiry, a quarrel, a distance, a delay — is made the object of attentive consideration. This step is followed by the abstraction and generalization of those qualities, or characters, which are recognized as the basis of laws; and this again is succeeded by the formation of new conceptions so complicated and so comprehensive as to be beyond the reach of any but rational beings. Finally, a yet higher intelligence is obtained by the accurate definition of ideas, by the logical division of them, and by their arrangement in systems. In this way sciences originate.

Judgment, as a mental modification, stands midway between the notion and the inference. So far as it consists of thought judgment is an existential conception, but in addition to this it includes conviction or belief. In inference the formation of conviction is more prominent than in simple judgment; for inference founds one judgment on another or on others. *A rational judgment arises when things are seen in their deeper and wider relations, or even when a superficial fact is analytically considered;* and such a judgment, when fully formed and expressed, is called a proposition.

We cannot join those who say that the exercise of reason depends on language, but it certainly is greatly facilitated by the use of this instrument; nor is there anything more marvellous than the way in which the words of a proposition set forth the elements which are united in every rational judgment.

The inference may be regarded as consisting of two judgments, or propositions, connected with each other as antecedent and consequent; and *it is rational inference, or reasoning, only when it involves a noticeable degree of analytic or comprehensive thought.* The antecedent proposition may be either simple or compound, according to the nature of the fact or truth presented by it; but the inference can always be reduced to two propositions, and in a certain sense always consists of two only.

This may be seen, first, in the case of those inferences which logicians call immediate. In the example, "Nine inches are part of a foot, therefore they are less than a foot," there are two simple propositions, the latter being the consequent and the former the antecedent. But should we say, "John is older than Hugh, and Hugh is older than William; therefore John is older than William," the antecedent might be said to contain two propositions, as it certainly does; yet neither of these by itself constitutes an antecedent; both must be taken together to express one compound fact, — namely, "John is older than Hugh, who is older than William." This compound proposition is the antecedent; so the argument is reduced to two propositions, though one of them is compounded and double.

In those inferences, also, which logicians call mediate, the antecedent consists of one proposition, — that is, of the statement of one fact, though it be compounded of two. When we say, "Hindoos are men, and men are mortal," there are two propositions, neither of which alone would lead to any conclusion; but the compound proposition resulting from their union is a logical antecedent. For we may say, "Hindoos belong to the class, men, who are mortal," or "Hindoos have the nature of man, which is subject to death;" whence we infer, "Hindoos are mortal," or "are subject to death."

Any detailed discussion of the forms of rational thought does not lie within the limits of our present purpose. Logic is the science which sets forth the laws according to which these forms are constructed and employed.

We are convinced that the progress of philosophic analysis calls for a more natural and less dogmatic development of this science than any that has yet appeared, and confidently hope for a satisfactory logic in the near future. For a true theory of rational conviction must spring from analysis and not from assumption. Partly to support the possibility of this hope, we shall close our discussion of the discursive intellect with some remarks on the principal, or generic, modes of reasoning.

CHAPTER XLVIII.

RATIOCINATION.

Reasoning, or ratiocination, defined. Syllogism defined.

1. The name *reasoning*, or *ratiocination*, might be applied to every exercise of the discursive faculty, and is sometimes so employed. But, more commonly, it is restricted to *conscious and intentional inference;* and we shall use the term with this meaning.

This inference may consist of one act of reasoning, or of many. In the latter case we have a course, or train, of reasoning. As the understanding of the single step renders the explanation of a succession of inferences a matter of little difficulty, the philosophy of ratiocination is chiefly concerned with the single step.

A step, or act, of reasoning, when fully stated or expressed, may be called a *syllogism*. Aristotle says: "A syllogism is a sentence in which, certain things being laid down, something else, different from the premises, necessarily results in consequence of their existence." Here the essential point is, that, something being laid down, or assumed, as true, something else follows, or may be inferred, as true.

Aristotle, indeed, does not speak of a thing, but of things, being laid down, as if inference were always grounded on a plural something. This is to be accounted for by the fact that he formally recognized only those inferences which proceed from two premises. Such has been the influence of Aristotle, that almost all logicians have followed his example in this respect. Of late years, however, particular attention has been given to certain "immediate inferences," in which one fact or truth is inferred from *one* other; and it seems best that these, as well as all other inferences, when fully stated, in thought or in language, should be called syllogisms.

A necessary consequence may not involve a necessary consequent.

2. The principal point in Aristotle's definition applies equally to all forms of inference whatever. He says that *the conclusion necessarily follows from the things laid down.* This is true of every correctly formed syllogism, whether the conclusion be in itself true or not, and whether it set forth something as certainly or necessarily fact, or as being only doubtfully or probably or possibly true. In every case the conclusion follows necessarily from the premises, and must do so as long as the nature of things and the nature of mind remain what they are.

In order to justify this statement, and to free the doctrine of inference from confusion, *a distinction is necessary between what may be termed a convictional and an objectual necessity of consequence.* In every correct inference, whether of something necessary, of something contingent, or of something probable, there is a convictional necessity of consequence. The antecedent, or premise being certainly or possibly or probably true, the consequent, or conclusion, must be true also in a corresponding sense. But an inference may be correct without any *objectual* necessity of consequence. This belongs only to that demonstrative inference which arises from the known or assumed existence of some antecedent of necessity. It does not belong to the inference of the contingent and the probable.

The distinction now made may be stated somewhat inadequately by saying that *a necessary consequence does not always involve a necessary consequent.* The former of these things belongs to the essential character of every syllogism; the latter to demonstrative reasoning only. Should we say, in contingency,

> Every middle-aged woman may be a married woman;
> This woman is middle-aged; therefore
> She may be married,

the conclusion would necessarily follow, though it would not be objectually necessary. But should we say,

> Every widow has been married;
> This woman is a widow;

stating these things for certain, there would not only be a necessary consequence, but also a necessary consequent,

> This woman has been married.

False or incorrect syllogisms.

In entire consistency with the doctrine that the conclusion of every syllogism necessarily follows from the premises, we sometimes speak of false or incorrect syllogisms. In this, by a secondary use of language, that is called a syllogism which has some appearance of being one, while it really is not. Our language is like that of those who call a mere military display a battle — that is, a sham battle — because of its outward resemblance to a fight, although the essential elements of a conflict are wanting. In false syllogisms, or inferences, the conclusion does not necessarily follow from the premises.

A threefold division of inferences: demonstrative, contingent, probable.

3. We shall commence our discussion of ratiocination by making a division of inferences with reference to the mode of logical connection between antecedent and consequent. A thing is necessarily existent when a logical necessitant of it exists and is included in an

antecedent; it is a thing contingent or possible when some or many of the elements of that necessitant exist, while none are known to be non-existent; and it is probable when a definite proportion of the chances, or individual possibilities, attending an antecedent of contingency, are seen to include the existence of the consequent.

Inferences, therefore, are those of necessity, of contingency, and of probability; and in each of these modes they may be syllogistically, or formally, expressed. We may say,

Triangle A is equal to triangle B; and
Triangle B is equal to triangle C; therefore
Triangle A is equal to triangle C.

This would be reasoning in necessity. Or we might say,

This figure is a triangle, therefore
It may be equiangular.

This would be reasoning in contingency. Or we might say,

This is one of three individual triangles, of which one is scalene,
one isosceles, and one equilateral; therefore,
with the probability of one in three,
This triangle is equilateral.

The style of reasoning exhibited in inferences of necessity is commonly called *demonstrative*, or *apodeictic;* while the other two modes have been classed together as *contingent*, or *probable*, reasoning. Of these last two terms, the former is the more ancient designation, and the latter the more modern, for all inference arising from the conception of possibilities.

With Aristotle the contingent syllogism is what logicians now call the probable. Neither he nor they distinguish from each other the modes of reasoning which we have designated by these terms. The conception of contingencies, being a constant and prominent element of probable inference, was thought of only as included in the latter; and the more easily so because the conjecture of contingency seldom takes place without being developed into the conjecture of probability. It is not to be wondered at that one of these inferences was subordinated to the other, and that both were included under one generic name. At the same time the philosophy of thought requires that the contingent and the probable inference should sometimes be distinguished from each other specifically; and should some generic designation be then desired which should leave each of these names to its own proper application, both contingent and probable inference might be included under the title *problematic*, or *conjectural.*

In every case of problematic inference a part of an antecedent of necessity is employed, not of choice, but because the case does not yield a whole antecedent. Therefore, in a certain sense, contingent and probable reasoning may be regarded as imperfect modes of inference, and demonstrative as the perfect mode. But as the incomplete or imperfect is more easily understood after we have obtained a correct conception of the perfect, our attention, in the first instance, must be principally directed to demonstrative reasoning.

Nevertheless, all these modes of inference can, to some extent, be studied together. Since it is the nature of all syllogisms whatever to present an antecedent with which, in some way, the existence of a supposed consequent is naturally connected, we may expect some common relations to pertain to things which are thus generically one. The most important of these relations may be brought to view if we now consider two distinctions which are of an absolutely universal application.

Ostensive, or categorical, and suppositive, inference.

4. The first of these pertains to the subjective aspect of syllogisms, and sets forth two modes of belief, or forms of assertion, either of which every inference may assume without any change in the thoughts composing it. Using this distinction, we divide syllogisms into *the ostensive* and *the suppositive*. The former have truth, or what is taken for truth, as their ground of inference; the latter are expressly based on hypothesis.

This division may be traced to Aristotle, or, at least, may be supported from his writings. He teaches that "every demonstration and every syllogism must show something to be inherent or non-inherent, and this . . . either ostensively or by hypothesis." He describes the ostensive syllogism as one "which commences from confessed theses," and "in which the premises are laid down according to truth;" and he says, "Let us first speak of the ostensive syllogisms; and when these are explained the truth will be clear also in reference to those leading to the impossible, and concerning those by hypothesis generally."

He also shows that the "syllogism *ad impossibile*," or the *reductio ad absurdum*, though suppositive, has essentially the same form, or thought-structure, with the ostensive syllogism.

It is to be regretted that the writings of Aristotle nowhere fulfil his promise "to show hereafter what are the distinctive marks of the hypothetical syllogism, and in how many ways it is produced." We cannot tell whether he included all syllogisms founded on an hypothesis among the hypothetical, or whether he characterized as hypothetical those only which have something additional to their suppositive character. Certainly the *reductio ad absurdum,* which he frequently mentions as hypothetical, is not simply a suppositive syllogism, but a suppositive syllogism with an ostensive addition. We reason, —

> Any passing animal would leave tracks on the sand;
> A camel (*let us suppose*) has passed here; therefore
> (*We must suppose*)
> The camel has left tracks.

So far the ratiocination is purely suppositive. But we add, —

> There are no tracks; therefore
> No camel has passed.

This is an ostensive addition, and by reason of it the argument as a whole is not really suppositive; it is ostensive.

But whether Aristotle did or did not regard such additions as essential parts of his "hypothetical syllogisms," his followers have done so; therefore the suppositive syllogism of which we now speak is to be distinguished from that which is ordinarily styled *hypothetical.* For the suppositive differs from the ostensive simply as resting on an antecedent which is not asserted, but only supposed, to be true.

Ostensive inferences are such as these: —

> Air is a substance; therefore
> It occupies space. —
> Trees spring from seeds; therefore
> These trees have done so. —
> All gases are elastic;
> Oxygen is a gas; therefore
> It is elastic. —
> Men wounded in battle often die;
> My friend is wounded; therefore
> He may die. —
> Triangle A is equal to triangle B; and
> Triangle B is equal to triangle C; therefore
> Triangle A is equal to triangle C.

These same reasonings become suppositive if we say, —

> If air is a substance, then
> It occupies space. —
> If trees spring from seeds, then
> These trees have done so. —

And so on with the rest.

Though closely allied, the ostensive and the suppositive modes of reasoning may take place independently. Each infers from its own mode of propositional thought, and produces its own kind of conviction. But *the whole logical value of the suppositive syllogism lies in the possibility of its being converted, either* *directly or indirectly, into the ostensive syllogism, by means of an ostensive addition.* Only ostensive inference produces expectation of reality.

The distinction between ostensive and suppositive reasoning corresponds closely with that between real and hypothetical knowledge and real and hypothetical belief; yet it is not exactly parallel. An ostensive syllogism is one whose premises are assumed to be true, and accepted without question, whether they be really true or not; while a suppositive syllogism is one whose antecedent is conceived merely as an hypothesis, whether the truth or falsity of the hypothesis be known or not.

The nature of suppositive inference being understood, there need be no difficulty regarding that hypothetical syllogism which logicians discuss. This simply accepts the suppositive inference as correct, and then, upon the ostensive assertion of the antecedent infers the actual truth of the consequent, or upon the ostensive denial of the consequent infers the actual falsity of the antecedent. In so doing, it proceeds immediately from a knowledge of the logical connection between any two things which are seen to be related to each other as antecedent and consequent.

The ostensive syllogism is that which the successors of Aristotle have called *categorical*, because the propositions of which it is composed are categorical. Without objecting to this term, we prefer the ancient name, principally because this is more easily contrasted in meaning with the term "suppositive."

Orthological and homological inference. Defined and illustrated. Locke quoted.

5. The second distinction of which we spoke as relating to all syllogisms whatever, concerns an objective difference between the antecedents which inferences employ, and takes note of two ultimate modes, or forms, of ratiocination, in one or other of which every inference takes place. For either what is inferred to exist is so inferred simply because of its logical connection with some known fact, and without any reference to any previously perceived case of logical connection; or it is inferred because the antecedent laid down is similar to some other antecedent previously found to have a consequent similar to that now offering itself for our acceptance and belief.

In this latter case the previously perceived connection between one thing and another may have been the object of immediate cognition and observation, or may have been perceived inferentially. But the fact that it existed, and the further fact that the antecedent now presented is similar to that previously perceived, together constitute a new antecedent for a new consequent. For it appears to be an ultimate and necessary law of existence that similar logical antecedents should be accompanied by similar consequents.

In the absence of better terms, we shall style all inferences whose validity depends upon their conformity to this law of being and of belief, *homological;* while those inferences whose force is independent of any comparison of present with previously perceived cases of consequence we shall call *orthological.*

Homological inference takes place whenever one reasons from experience, or from any knowledge of some similar case or cases. If a little child but once puts its finger into the flame of a candle, it will avoid doing so thereafter. In this it is guided by a conclusion from a past experience. An adult person, who avoids touching fire on the general principle that "fire burns," likewise reasons homologically, even though he may not directly refer to a past experience; for the general principle from which he reasons is derived from the past experience of himself and others.

So also the student who, by a series of immediate judgments, has perceived that the three angles of some plane triangle are equal to two right angles, feels warranted to assume this to be true respecting any other plane triangle. Moreover, he can obtain a general principle from his immediate perception of truth, and can employ this, homologically, as a rule of inference.

Orthological reasoning takes place in the more intuitional steps of mathematical and geometrical demonstration, and in what have been called *immediate inferences* generally. It is such as Locke mentions in the following passage. "I ask," he says, "is it not possible for a young lad to know that his whole body is bigger than his little finger but by virtue of this maxim, that the whole is bigger than a part, nor to be assured of it till he has learned that maxim? Or cannot a country wench know, that, having received a shilling from one that owes her three, and a shilling also from another that owes her three, the remaining debts in each of their hands are equal? Cannot she know this, I say, without she fetch the certainty of it from this maxim, that, if you take equals from equals, the remainders will be equals, — a maxim which possibly she never heard or thought of? I desire any one to consider . . . which is known first and clearest by most people, — the particular instance or the general rule; and which it is that gives birth and life to the other."

In these inferences described by Locke, two things are observable. In the first place, *the force of the reasoning is not derived either from or through any general principle.* This is the point which Locke enforces. If one were to cut an apple into pieces, and think only of that apple and those pieces, he could immediately reason, and say respecting any one piece, that it was less than the whole apple, and this with as much certainty as if he should say, —

> Wherever there are whole and parts, each part is less than the whole;
> In this case there is a whole with its parts; therefore
> Each of these parts is less than the whole.

And no strength would be added to the reasoning of the country-woman by saying, —

> When equals are taken from equals, the remainders are equal;
> In this case equals have been taken from equals; therefore
> The remainders are equal.

The maxim, or general principle, in such cases may serve to test the reasoning, but is not the source of its validity, — that is, of its power to produce correct conviction.

Secondly, we must notice that orthological inference takes place not only without reference to any general principle, but also *without reference to any previously perceived particular case of necessary connection.* Locke did not fully apprehend this point. His zeal is directed against the doctrine "that all knowledge [or reasoning] depends on certain *præcognita*, or general maxims, called principles." He nowhere denies that all inference may derive its force from remembered instances of a similar nature. But it is clear that we often reason without any reference either to general principles or to any similar case of necessary connection previously perceived.

We often note a certain fact, simple or complex, and thereupon immediately infer another fact. This is the most striking peculiarity of those inferences mentioned in the above quotation from Locke. If one event precedes another, we can immediately, or without reference to any other case, affirm that the other follows it; and if a first event precedes a second, which precedes a third, we can assert, with equal directness, that the first is prior to the third as well as to the second.

There may be ground for question whether, without any presentational knowledge of things as connected in necessary ontological relations, the mind could originate the conception of unseen consequents to be inferred from perceived antecedents. We may even allow that the relational conceptions which orthological inference employs are first obtained by the mind in its immediate cognitions of fact. But *there can be no question that many inferential convictions give no indication of being dependent on any knowledge of similar cases of connection.*

On the contrary, that same mental power which immediately recognizes the necessary connection between two things presentationally perceived, also immediately asserts the necessary connection between two things of which one is known, and the other only conceived, to exist; and thereby directly infers the existence of the other thing.

Here the question occurs, In what way can we determine whether any particular inference be orthological or homological? To which we reply that this is to be determined by asking, On what does the force of this inference essentially depend? If it arise simply from consideration of the nature of the antecedent, and is independent of reference to any other similar fact known to be logically necessitant, the inference is orthological; if it arise in connection with such reference, it is homological.

Hence it is clear that *all reasoning from general principles is homological.* A general principle has no force originally belonging to itself. It is derived from the perception of a particular case of consequence, or of a number of such cases, and has its validity according to the law that whatever is necessary in any individual instance is necessary likewise in every other instance in which there is an antecedent containing the same necessitative conditions. When we reason from a general principle, we do, in effect, reason from the similar to the similar.

All inference may be given a homological form. All inference based on ontological relations.

In all cases of inference we may be said to reason *in accordance with* general principles. Therefore, also, a homological form may be given to all reasoning. But any inference which is in no way *dependent on* the general principle should not be regarded as homological. For this reason we distinguish between that apparent and formal reasoning from principles, when mathematical, geometrical, and metaphysical axioms are employed, and that real use of principles and general theorems which takes place in the development of any form of ontological science. After we have made some progress, orthologically, through a consideration of individual constructions of figure, or of particular concatenations of fact as in various necessary relations, we generalize the truths thus obtained; and thereupon, neglecting and forgetting the methods by which such truths were reached, we use these as general rules or principles in our further reasonings. Thus, without remembering how we first came to adopt the rules, we ascertain the comparative solidity of cones by multiplying the area of their bases by one third of their altitudes, and we extract the cube root of numbers by a more complicated method. In such cases we are guided by general principles, and reason homologically.

Comparing the two modes of inference with reference to our use of them, we find that *the most noticeable part of human reasoning is homological, while, at the same time, the ultimate principles of inference, with one exception, are orthological.* Homological reasoning has only one ultimate principle, while orthological has many. Here, by ultimate principles, we mean such as are immediately subordinate to the universal principle of reason and consequent.

It will be noticed that orthological inference is more evidently, though not more truly, illustrative of this fundamental law than the homological. When we collect at random a number of diverse orthological inferences, we find that they can be coordinated under no one general law, except that of reason and consequent. But when we collect homological inferences, we are distracted by the duality of the principle according to which they are constructed, and by its wonderful universality of application.

Because of this latter characteristic *the homologic principle has been mistaken for the fundamental principle of all reasoning.* This error has been facilitated by the circumstance that in every train of inferences the successive steps, though sometimes orthological and sometimes homological, can all be given that form of expression which is properly necessary only for the explicit statement of our reasonings from general principles. All reasoning may take a homologic form, and therefore we wrongly say that all reasoning is based on the homologic principle. This has been the almost universal mistake of logicians from Aristotle down.

Again, considering both kinds of inference as setting forth things as logically connected with one another, the *ontological* character of both becomes apparent. By this we mean that *the radical laws of connection which the mind uses in these forms of ratiocination are such as must belong to any system of things and form a basis for one's reasoning with respect to it.* Collecting and analyzing orthological inferences, we find them to arise from consideration of the necessary relations of times, spaces, quantities, substances, powers, actions, changes, — in short, of such relations as must pertain to things, provided they exist at all, and which could be annihilated only by the annihilation of being; while the homologic principle that similar consequents attend similar antecedents — that what is necessary in any case, by reason of the nature of the case, is necessary again upon the recurrence of that case — is also ontological.

It may be asked, *Can homological inference be based on ontological necessity when it produces belief in things that are not* *ontologically necessary*, as, for example, when it predicts the freezing of water at a certain temperature? For we may suppose that almighty power could change the nature of water in this one respect, so that, on the sea-level, it would remain liquid, or would boil, at the temperature of 32° Fahrenheit.

We reply that not only that prediction of natural events which is characterized by the highest moral certainty, but also our merely probable expectations, — and, in short, all inferences whatever, — are based on the recognition of the necessary character of ontological relations. Demonstrative reasoning assumes a perfect and complete antecedent of necessity; contingent or problematic reasoning assumes an imperfect and incomplete antecedent of necessity; but *in both the force of the inference depends on a perception of the necessary, ontological, relations of entity.*

The truth of this doctrine is supported by the fact that probable inference may assume a mathematical expression, as it does in the "Calculation of Chances;" but any complete discussion of it belongs to the philosophy of Logic. At present we must content ourselves with saying that the radical principles of probable inference are as ontological as those of demonstrative inference, and would, as a matter of course, be employed, by minds like ours, in any universe, or constitution of things, whatever.

CHAPTER XLIX.

EXPERIENCE AND INTUITION.

Three common meanings of the term "experience."

1. EXPERIENCE, in common language, has three principal meanings.

First, it is a name for *all of man's psychical life*, all he does or suffers, *so far as he is distinctly conscious of it*. According to this, we say, "One's experience during such or such a period was monotonous or varied, happy or full of sorrow."

Secondly, it may denote all of those *cognitions, or perceptions, of present objects and relations* which take place immediately on the occasion of one's psychical life, whether the objects be included in this life or only in some way connected with it. In this sense "experience" is a comprehensive term, including every form of sense-perception, concomitant perception, and consciousness. Hence memory is the record of experience, and is referred to as giving the testimony of experience.

This mode of cognition is nothing else than presentative perception. Its principal element is the cognition of simple fact; but it does not exclude, as an accessory to this, a perception of necessary relations. Thus one may experience, or know from experience, the length of a certain road, the necessity of passing over that road to reach a certain mountain, the height of the mountain, the necessity of exertion to surmount the summit, the beauty of the prospect obtained there, the resemblance of this view to some other seen elsewhere, and the dependence of the beauty or the resemblance on some particular features of the prospect. Whatever of fact or of necessity may be observed with attention and interest is an object of this experience.

Finally, experience may signify *our immediate knowledge of fact considered as accompanied by an inductive process*, and as resulting in general conclusions. With reference to this meaning we often speak of the dictates of experience, and say that a wise man is governed by experience, and that it is possible to learn from experience — that is, from inductive observation — many useful and important lessons.

At present we employ a sense more restricted than any of these, but more closely related to the second than to either of the others. We mean, by experience, *the perception, or observation, of mere fact, as distinguished from the perception of the necessary, or logical, relations of fact, or of fact as having these relations.* If one sees a man on the street, the sentence "The man stands on the street, not in the house," may express his experience, or experiential perception, in regard to the man. In this he sees and believes simply that the man is in the one place and not in the other, but does not think of the necessity of his being somewhere if he exist at all, of the impossibility of his being both on the street and in the house at the same time, or of the possibility of his being in either place. These last-mentioned perceptions are intimately united with those of mere fact, and are frequently included with them in one act of cognition; yet they may be distinguished from the latter, and may be called necessary, or logical, or intuitional, perceptions.

A peculiar technical application of the term. Defined and illustrated.

Often a judgment of experience, or an experiential judgment, signifies a lesson or general truth learnt from our observation of fact; and this use of language is natural and proper. But in the present discussion we shall mean, by experience, *only the simple perception of fact, — that is, of fact, so far as it does not involve logical relations;* for these relations, of course, may also be things actual. And by empirical cognition, judgment, perception, or knowledge, we shall mean the cognition of simple fact, and not the knowledge of any law gained from observation, although the phrase might have this latter signification.

Experiential, or empirical, judgments, or perceptions, are expressed by pure categorical statements, or what the Aristotelians called propositions "de inesse." They use the indicative mood of verbs, and this in its simplest and most literal significance. Sometimes this mood is used to express a necessary law, as when we say, "A straight line is the shortest possible between two points;" "Ice, when exposed to the fire, will melt." But it expresses experiential perception when it is used merely historically. Hence experiential, or empirical, knowledge might be called historical; as it was by Aristotle. Philosophical history, which accounts for facts and traces them to their causes, is not purely empirical; but history, as a mere chronicle of facts, is a formal record of experience.

Experiential knowledge admits of generalization, or rather of the use of general notions. One can say, "All the trees in that forest are oaks." This does not express any law of necessity, but simply sums up the result of an exhaustive observation. A general fact must be distinguished from a general law.

In causational sequence experience, or empirical perception, may be said to observe the agent and its power, the operation of the power and the result as produced by this, but not that absolute necessity of connection which exists between these things; just as it may perceive a body occupying space, but not as doing so necessarily. In other words, historical fact and logical necessity may be distinguished, and the perception of each assigned to a different power, or to a different modification of the same power.

Intuition defined. McCosh.

2. The term "intuition" signifies literally "a looking upon," and is naturally applied to any style of conviction in which something is immediately seen, and not inferred, or believed on testimony, to exist. "By intuition," says President McCosh, "I mean that power which the mind has of perceiving objects and truths at once, and without a process." This is the primary and generic meaning of the term.

But, according to this signification, that act of mind which we have distinguished as experience, or empirical perception, is a leading kind of intuition: all presentative cognition, whether of sense or consciousness or concomitant perception, is intuitive; for all such cognition is immediate and without a process.

In a previous part of the present treatise the term "intuition" was used to signify presentational cognition, and not in the peculiar and technical sense now to be employed. *The intuition of which we are about to speak is not, indeed, to be distinguished from all presentative cognition, but it is to be distinguished from what we have called experiential*, or *empirical*, perception. According to the sense at present before us, it is not intuition simply to be conscious of having a toothache, and to know that it is on one side of your face and not on the other, or to realize that you have five digits on one hand, and that with these you are touching the fingers on the other hand, or other objects within reach. These perceptions would be experiences in the special sense already defined.

Again, intuition sometimes signifies an action of the intellect in which things are perceived, not really without a process, but so quickly and with so great natural or acquired facility that the steps of the process elude our observation. *According to this sense, intuitive reason is opposed to discursive*, though these are both radically of the same nature. In like manner the process of inference in our acquired sense-perceptions is called *intuitive*. This is that intuition exhibited by great mathematicians, who sometimes understand and solve problems at once which others master only by slow and methodical calculation.

The meaning of the term "intuition" as opposed to the term "experience."

The intuition of which we now treat agrees with experience in being a perception of truths without a process; but it differs from experience in that it takes place quite as well in the absence as in the presence of the objects asserted to exist. It manifests itself in the fact that a large class of propositions need only to be presented to the mind in order to be fully believed. No objects need be actually present; the conception of them is sufficient.

For this reason the truths thus perceived may more emphatically be styled *intuitional* than those gained by experiential cognition. Experience does not lead to the belief of propositions apart from the evidence of observation, and simply on our consideration of them; in this sense experiential convictions are not intuitive.

Because logic and mental science immediately examine reproduced or elaborated ideas, and not the perceptions in which these originate, it was natural that in many discussions those beliefs alone should be called intuitive which are evident in themselves, or simply as conceived by the mind, while propositions expressive of our perceptions of simple fact should be regarded as immediately evidenced by the presented object, rather than as immediately evident in themselves. Thus the terms "intuitive" and "intuitional," though naturally referring to all perceptions which are immediate or without a process, have been opposed to the terms "experiential" and "empirical," and have been employed to distinguish a class of cognitions which are not those of simple fact.

With respect to their objective character, intuitions are necessary, or necessitudinal, judgments.

The objective peculiarity common to intuitive, or self-evident, convictions is that they pertain to the necessary relations of things, and set forth things as in necessary relations. For this reason they have been called our necessary judgments or beliefs. This designation refers to the necessary nature of the truths which these judgments set forth, and not to their own nature as modes of mental conviction. Although the constitution of the mind renders them necessary in this light also, they are no more subjectively necessary than our experiential convictions. What our cognitive powers apprehend to be fact, we cannot help firmly believing, whether we apprehend it as necessary fact or not.

Moreover, it is to be remarked that *although our intuitions set forth what is necessarily true, they do not always set forth what is necessarily existent.* They may present the merely possible, or, through a combination of the possible with the necessary, what is only probable. The distinction between intuitive and experiential convictions is not such that certainty belongs to the former and probability to the latter. On the contrary, pure intuitional reasoning, in which only ontological principles are employed, may have probable conclusions, while both experiential knowledge and the inferences from it may be perfect and absolute. No one will dispute that when I see an object — for example, my inkstand — I am just as certain experientially that it is where it is, — that is, on my table, — as I am, intuitively, that, being a real inkstand, it must exist somewhere.

But the doctrine has been taught that intuitive perception, being the cognition of things necessary, is always productive of absolute certainty. This is incorrect. Our ontological convictions set forth always what is necessarily true, but not always what is necessarily existent. *Possibility, or contingency, and probability, no less than necessity and certainty, belong to the very nature of things, and are intuitively perceived.* Our inferences in possibility and in probability, no less than those which are necessary and certain, involve ontological judgment. All pure mathematical reasonings are intuitional, but among the purest of them we must reckon calculations of probability.

We allow that our more important intuitions concern the necessarily existent rather than the possible and the probable. But we maintain that the radical principles of contingent reasoning are intuitive convictions. Let it be remembered that *necessary* judgments are not simply those which set forth things as existing necessarily under given conditions, but those which set forth things as necessarily true.

In styling all intuitional judgment *necessary*, we recognize a community of nature which subsists between logical necessity and logical possibility. *Both are modes of the state of the conditioned.* Possibility may be regarded as a partial or imperfectly developed necessity; and it partakes so much of the nature of necessity that it cannot be destroyed so long as the antecedent on which it depends exists. An effect is *necessarily* possible when some parts of its cause, at least, exist, nor can it cease to have this possibility till these conditions are removed. As intuitive judgments assert necessity and contingency, they are naturally expressed in modal and hypothetical propositions, just as empirical judgments are naturally expressed by categorical statements.

Our original perceptions of possibility and of contingency are intuitive, and, in a certain wide sense, necessitudinal.

Some distinguish "intuition" as the immediate perception of that which is necessary as such, and make "experience" the perception of that which is contingent as such. This contrast of judgments may be made, but it is not that presented in this department of philosophy. Contingency as well as necessity is intuitively perceived. Empirical perception is the simple cognition of fact, as fact, without reference to its logical relations. When we see a man walking along the street, we perceive, experientially, that he is moving in space. This is a thing necessary if he move at all, for no motion is possible save in space; and it is a thing possible, for the actual is always possible, and the existence of space renders the motion of any body possible. Moreover, we may say that this necessity and this possibility are presentationally perceived. But they are not *experientially* perceived. So far as anything is perceived as logically necessary or possible, it is the object of intuitional cognition; mere fact, to the exclusion of logical relations, is the object of experiential cognition. It is true that empirical knowledge does not recognize things as necessary; but neither does it recognize them as contingent.

Some intuitions are presentational. Three modes of intuition; one of experience.

Here let us avoid that extreme doctrine which makes all presentational thought experiential, and in this way denies that any intuitive thought can be so. There is no absurdity in saying that some things immediately perceived as fact are also, and in the same act of intellect, perceived as things necessary or possible. It is even reasonable to suppose that our first intuitions take place in connection with experiential cognition, and that they are not properly inferences, but presentational perceptions of things as in logical relations. Or we may say that in complete presentational perception intuition and experience unite. Thus, in the very act of perceiving some event as resulting from some cause, we also perceive it to result necessarily. We see that it could not take place without the cause, and that, with the cause, it could not fail to take place. *In such a cognition we would not infer the event from the cause, but perceive it as in necessary relation to the cause.*

In like manner mathematical intuitions may be presentational. We may see three equal bodies and their equality, and at the same time perceive the necessity that two of them, being respectively equal to the third, must be equal to one another.

But it is true that *the great use and value of intuitive judgment are realized in connection with inference.* As the vital element in inference, intuition enables one to perceive and know things which he does not know already, and which he cannot know in any other way. The fitness of intuition for this use, more than any other characteristic, is the ground of its philosophical importance and of its distinction from experience.

While this latter mode of perception is wholly presentational, *the intuitive judgment may assume three forms.* First, it also may be presentational, the perception of necessary relations between things visibly present. Secondly, it may be an actualistic inference, in which, from some seen antecedent, we infer a real consequent as necessarily connected with it. And, thirdly, it may be an hypothetical inference in which we merely suppose an antecedent, and thereupon infer a consequent as hypothetically necessary. *In these two latter modes of judgment, intuition exhibits that peculiar power whereby it produces conviction on the mere presentation of a proposition, and in the absence of the object asserted to exist.*

Singular, or individual, and general, or principiated, intuitions distinguished.

3. When we examine any spontaneous intuition or self-evident belief, — as, for example, that some individual change which we observe must proceed from a cause; or that some particular change similar to another must proceed from a cause similar to that of the other; or that two individual things (bodies, weights, forces, lines, surfaces, solids, or any kind of quantities), being each equal to a third, are equal to each other, — we find that the judgment *does not depend on the whole nature of the things observed and judged about, but only on certain elements of their nature,* which we perceive as the fundamenta of the necessary relations. We ground our judgment

on the perception that certain objects are quantities, and have relations and relata pertaining to them as such; or on the perception that they are events, and have the relations and relata belonging to them as such; or that they are substances, or powers, or spaces, or times, or relations of some kind, as identity or diversity, or similarity or dissimilarity, and have the relations and relata connected with them as such. Our conclusion is logically independent of any more specific (or specificative) features which may accompany these radical characteristics.

Such being the case, it is both possible and natural for thinking men to withdraw their attention from those elements in objects which are not necessary conditions of their judgment, and to concentrate their thought upon those which are. In this way *abstract singular judgments are formed*, presenting that which is self-evident simply as having the nature which makes it self-evident; and *from these, by an application of the homologic principle, general judgments are derived, which express fundamental laws*, and which may be used as radical rules of inference.

For example, perceiving or thinking about any individual event simply as such, we can immediately say that it must have a cause, and that, too, a cause corresponding to its own nature, and which, if repeated, will produce a similar effect. Or should we add together three equal amounts of some particular substance, as sugar or salt or water or wine, on two or more occasions, we might, thinking of them only as quantities, say that the sum in each instance is equal to that in each of the other instances. Then, immediately consequent upon such individual judgments, we have the general "principles," that there is no effect without a cause, that like effects have like causes, and that if equals be added to equals, the sums will be equal.

How far and in what sense intuitive and intuitional judgments are ontological.

4. Every such general judgment sets forth that which is necessarily true in any particular instance whatever, in which the antecedent of the judgment may exist. Such a judgment, therefore, may be regarded *as expressing an universal law of being. It states what absolutely must be true of some subject provided that subject exist.* It asserts that anywhere, or at any time, or in any system of being, in which that subject may be found, that law must prevail. Because these generalized intuitions would be true under any possible system, they may be distinguished as ontological judgments, and may be said to express ontological laws.

This character may be given to them on the further ground that they would be necessarily employed by rational beings, under any system of existence, as *really applicable* to the forms of entity composing it. In other words, our abstract *intuitive judgments are not only such as would be true, if applicable, under any system of being, but are such also as must be applicable.* For this reason, therefore, — as connected with the very existence of things, in case things exist at all, — we may call them *ontological* judgments, and say that they indicate ontological laws.

Those concrete intuitions in which objects are regarded in their whole nature, and without rejection of those elements on which the necessary perception does not depend, might also be called *ontological*, as containing and embodying the necessary judgment; and they sometimes do receive this name. They are ontological, however, not as to their whole nature, but only in an inferior and secondary sense, and as including judgments which more properly deserve the designation.

Cosmological judgments defined, as being concrete intuitions. How related to ontological judgments.

As contrasted with the abstract or general judgment, the concrete intuition might be distinguished as cosmological; and so our intuitions might be divided into two kinds, the *ontological* and the *cosmological*, — these latter having, in addition to the thought and perception which ontological judgments employ, and which they also employ, modes of conception and of conviction peculiar to themselves.

Our most noted cosmological judgments relate to the specific operation of natural causes. Let us, for example, take our intuitions respecting the explosion of a percussion cap by the blow of a hammer. Presentationally, we say that that particular blow (with its attending circumstances) was necessarily followed by that particular flash and report. Inferentially, we say that another cap, just like that one, would be exploded by a similar blow. These judgments pertain not to cause and effect in the abstract, but to the hammering and explosion of certain percussion caps.

Evidently, too, the propositions expressing them, *when understood as the utterances of intuitional or necessary truth, are self-evident* in the sense that they need only to be conceived or stated in order to be believed. Our conviction in each case assumes or starts from our observation and analysis of the actual phenomena. But at the same time these judgments, as setting forth necessary relations, include, and are founded on, modes of perception which do not depend on our knowledge of any instituted order of things, but which employ principles of absolute necessity, and are emphatically ontological. They include the judgments that a change demands a cause;

that the true cause, or a reliable sign of it, is discoverable by what logicians call the method of difference (for the explosion takes place only when the blow is given); and that like causes are conjoined with like effects.

These principles are ontological; *and not only does the cosmological judgment involve the assertion of them, as a part of itself, but its whole force, whether as a presentational perception of necessity or as an inference, depends on, and flows from, this assertion.*

The only part which experience performs in connection with inferences respecting the actual operations of Nature is to give a knowledge of fact simply as such, and without reference to the logical relations of fact. Thereupon inferential perception, according to ontological principles, taking hold of the facts, and retaining the specific forms of thought furnished by experience, yet without any further aid from presentative perception, can produce the conclusion proper in the case. The judgment that the explosion necessarily follows the blow is something so independently intellectual that it takes place as well on the supposition or remembrance, as on the perception, of the facts; while the judgment that a similar cap will be exploded by a similar blow is a homological inference from the particular intuition already made. So that although cosmological judgments find the specific form of their data and of their conceptions in experience, or the observation of fact, their whole force comes from the apprehension of truths which are evident merely on being stated and independently of our cognition of the actual.

Therefore, as opposed to experiential perception, and as being a mode of necessary and of inferential perception, the cosmological judgment is intuitional, and, in a certain limited sense, ontological.

While our reasonings respecting the operations of specific causes are pre-eminently cosmological, all other inferences, which employ any mode of conception not essential to the ontological principle which they follow, have the same character. Such are mathematical judgments and inferences about natural objects, considered as such and as having their observed peculiarities. The assertion that a pound of feathers is of the same weight as a pound of lead, because they are each equal in weight to a pound of iron, is a cosmological intuition.

Such judgments, yet more evidently than those regarding causational sequence, depend for their strength on the abstract principles which they enclose and embody.

CHAPTER L.

METAPHYSICS, OR ONTOLOGY.

The reliability of experience and intuition.

1. THE doctrine of the reliability of our original, or primary, judgments, or perceptions, relates equally to experiential and to intuitional perceptions. But it is more comprehensive than that which asserts the reliability of every mode of presentational cognition.

Both our first perceptions of simple fact and our first perceptions of things as necessary, or as contingent, are presentational. They are immediate cognitions respecting our own souls and bodies as being and as being related, as acting and as acted upon, now and here. These presentational judgments, when tested, exhibit every possible mark of trustworthiness. In the first place, *they are attended with irresistible conviction;* in the second, *they are upheld by the universal consent and "common sense" of mankind;* and, thirdly, *they are perfectly consistent and coherent with each other.*

We have now to add that both memory, the reproduced knowledge of fact, and *that intuitive inference in which judgments of necessity and contingency are repeated, while the things asserted to be necessary or possible are not immediately present,* have the same marks of reliability as our presentational cognitions.

When we speak of these intuitional judgments being repeated, we do not of course mean that they are repeated from memory, or even that the present has any dependence on a previous perception of truth. We only recognize the fact that the mind can perceive the same connection of things inferentially which it formerly perceived presentationally, in each case acting independently and according to the same law of conviction.

Intuition perceives an objectual necessity.

Moreover, it is to be noticed that the knowledge thus gained is that of an objectual necessity. It asserts not merely that we must believe something, but that this something in its own nature must be so, and cannot be otherwise. We not only perceive that equals added to equals are equal; but also that this is so by an absolute and inherent necessity. Were this not so, it would be necessary to explain inferential intuition as simply a sort of memory, or as resulting in some way from reproduced experience.

Some philosophers, resting on such an explanation, deny that we really perceive any absolute necessity, — that there are any such judgments as those called intuitional. But we appeal from these teachers to the unsophisticated consciousness of mankind.

Others, who cannot deny that an objectual necessity is asserted, say that our intuitions are delusive and unreliable. To prove this, they adduce certain "antinomies," or contradictions, in which they claim that the primary judgments of the mind conflict with each other.

These antinomies, however, derive their force from concealed assumptions and mistakes. They remind one of the arguments by which ancient sophists proved the impossibility of motion and the non-existence of plurality. None of our primary cognitions have ever been shown really to contradict one another.

But while defending the authenticity of intuition, we see no advantage in making for it doubtful or preposterous claims. For example, *the doctrine that we have an intuition of the infinite seems unnecessary and untenable.* In our own persons we perceive space and time and their necessary natures and relations. The convictions that space is boundless, and that time has been without beginning and shall be without end, are constructively and inferentially derivable from these immediate cognitions. In like manner belief in a Supreme Being, though very natural to the soul, appears to be not an immediate, but an inferential conviction.

Ratiocination a series of intuitions.

The doctrine that all intuitions which are not presentational are either actualistic or hypothetical inferences, throws light on the nature of reasoning. Every link by which, in a chain of ratiocination, one fact is connected with another already known, is an actualistic intuition; and every similar step by which one imaginary fact is united to another is an hypothetical intuition. Therefore, as the whole chain is composed of such links, we conclude that reasoning is simply a series of connected intuitions. It is admitted that every step in any mathematical demonstration employs some axiom or postulate, or rather follows that law of necessity or of possibility which the axiom or postulate expresses. So, also, when we predict a course of successive events, we reason according to those radical laws which connect cause with effect and similar causes with similar effects. And even those principles which regulate our inferences in contingency and in probability are intuitive perceptions of necessity and of possibility.

If these remarks be true, there is an intimate connection between the philosophy of intuition and the science of logic; for they show that reasoning not only begins with intuition (which is the common statement), but also employs intuition at every step of its progress.

2. Those two modes of cognitive judgment which we have called experience and intuition perfectly blend and unite in all our ordinary perceptions and convictions. For this reason, in previous discussions, *intuition and experience have been spoken of not simply as two modes, but also, and more definitely, as the two radical elements of belief, or conviction;* for it is scarcely possible for us to perceive or think of any fact without also perceiving some of its necessary relations.

The intuitional and experiential elements (1) of thought and (2) of being.

Growing out of this distinction between the elementary modes of conviction, is another, already noticed in an early chapter, between the intuitional and the experiential elements of thought, or conception. The intuitional elements of conception are those which enter as thought-factors into axioms, and into the most abstract statement of our necessary convictions; the experiential are those additions, obtained in experience, by reason of which a judgment which would otherwise be purely ontological is a cosmological intuition. These experiential elements never enter into any ultimate law of conviction; they only affect and color our convictions.

This distinction between the intuitional and experiential elements of conception is not parallel with that between the intuitional and experiential elements of conviction; that is, *we cannot say that only intuitional elements of conception are employed in intuitional cognitions, and only experiential in experiential.* On the contrary, both modes of conception are employed in each mode of belief. Cosmological intuitions employ experiential conceptions as well as those on which their peculiar force depends; and our experiential cognition of things includes, and sometimes mainly consists in, the perception of elements which serve also as the fundamenta of necessary, or logical, relations.

When one sees a man walking along the road, his body and its parts, his place, his size, his motion, and his rate of speed, are all perceived as matters of fact. But these things involve such radical entities as space, time, substance, power, action, change, quantity, and relation, which are ontological elements. Plainly, experience perceives such elements, and objects compounded from them, as well as the non-ontological peculiarities which may be found in such objects.

There is, however, a distinction immediately connected with that between intuitional and experiential elements of conception, which is exactly parallel with it, and which some have confounded with it. *It is that between the intuitional and the experiential elements of entity.* The elements thus divided are the objects, or rather the ultimate elemental parts of objects, which correspond to the elements of conception. They may also be distinguished as the ontological and the empirical elements of entity. Let us speak first of the one, and then of the other.

The ontological elements of entity. The transcendental objects of intuition.

Different thinkers have given different categories, or *summa genera*, of those elements of being which are the bases, or fundamenta, of necessary relations, and therefore also the essential matter of intuitional conviction. So far as we can see, there are in all seven such categories, and, beside these seven elemental genera, several radical kinds of relation which subsist between them, and which constitute another comprehensive category. *The seven are space, time, quantity, substance, power, action, and change. These categories are to be regarded as setting forth absolutely simple elements, and as being entirely exclusive of one another.* They furnish the necessary constituents for the framework, or form, of particular entities.

Beside these generic categories there are what we may call the transcendental objects of intuition. *They are simple entity, or being, existence, non-existence, necessity, and possibility.* They are transcendental, not because they transcend presentative cognition, — no category does that, — but because of their universal logical applicability.

That science which specially discusses the intuitional elements both of conception and of entity, together with the leading laws of conviction and of existence, was named *metaphysics* by the disciples of Aristotle. Aristotle himself entitled it "The First Philosophy." *It has also been called ontology, or the science of being, this term bringing into prominence the objective side of the science.*

Moreover, because ontological principles affect almost every question concerning the intellect, the name "metaphysics" is frequently, though improperly, applied to mental philosophy in general. Metaphysics and logic are twin branches, both outgrowths of the general philosophy of mind.

The experiential character of things arises from the different modes in which power excites sensibility.

The experiential elements of entity and the elements of conception corresponding to them include all those simple, or ultimate, modes of thought and of being which are not intuitional, or ontological. Unlike the ontological elements, they are seldom the objects of special and separate consideration; they merely qualify or characterize. In all ordinary generalization only experiential thought is dismissed; that which is retained has an intuitional constitution, and in the highest abstractions is purely intuitional. *Intuitional thought furnishes a framework, or form, which is filled in and clothed with the experiential, and with which the latter is always found united.*

In what way the experiential and the intuitional elements of entity are related to each other by reason of their own natures, — in other words, how those modifications of being which are simple and ultimate to experience are connected with those elements which are simple and ultimate to intuition, — is a question for metaphysics rather than for mental philosophy. But we may say that the experiential character seems specially related to power and its operation; for it primarily attaches itself to those specific modes of power by the operation of which, either in or upon spiritual beings, feelings are produced. The peculiarities both of the sense-affecting qualities of material objects and of the life and experience of the soul itself, as these are seen by sense-perception and consciousness, are the primary objects and sources of experiential thought. These peculiarities are recognized as affecting every part both of the spiritual and of the material universe, and are of a countless variety.

Intuitionalism. Scepticism. Dogmatism. Kantianism. Associationalism.

3. That theory of immediate cognition which distinguishes between experience and intuition, and which explains the nature of each of these modes of mental action, has been named *intuitionalism*. This doctrine at once admits all the facts presented by consciousness, and explains these, after their true nature, according to generalizations justified by a careful comparison and analysis. On this account we believe that it will stand as the final statement of philosophy regarding man's primary beliefs.

The excellence of the intuitionalist view may be illustrated by the incompetency of all other theories which have sought the approval of studious minds. These may be rudely classified under four heads, as the *sceptical*, the *dogmatic*, the *Kantian*, or *conceptionalist*, and the *associationalist* theories of our primary convictions.

Philosophic scepticism. Pyrrho, Hume.

In ancient times, philosophical scepticism nourished itself on the sophistical refinements of Pyrrho regarding our acknowledged cognitions; in modern times, under the leadership of David Hume, it has triumphed in overthrowing inadequate accounts of our perceptions of fact and truth. But it never has been a common doctrine even among philosophers; for no man, however he may be puzzled by subtile difficulties, can really doubt the testimony of his senses and of his consciousness, or the intuitive perceptions of his intellect.

Dogmatism. Ueberweg, Locke, and Aristotle quoted.

That school in philosophy which maintains that the mind has the power of *immediately perceiving fundamental truth in the form of general abstract principles*, has been called the *dogmatic*. "Dogmatism," says Ueberweg, "has an immediate faith in the power of human thought to transcend, by the aid of perfect clearness and distinctness in its ideas, the limits of experience, and attain to truth." This doctrine is an improvement on scepticism; but it sets out from a wrong starting-point, and tends to the acceptance of abstractions whose truth and authority may be denied.

Locke attacks dogmatism when he denies that maxims, or axioms, are "the principles and foundations of all our knowledge," and maintains that "all the materials of reason and knowledge come from experience." In Locke's writings, experience is to be taken in a broad sense for presentational perception in general.

But the doctrine that all cognition is primarily a perception of the singular, has been struggling for recognition from the earliest beginnings of philosophy. That famous saying which Aristotle borrowed from the Stoics, "In intellectu nihil est quod non prius fuerit in sensu," is no obscure anticipation of Locke's assertion that all knowledge originates in *experience;* for in this statement *αἴσθησις* is to be taken broadly to signify every kind of immediate perception.

Kantianism. Idealism.

The doctrine of Kant *was an attempt to explain and defend the truth which dogmatism inaccurately taught,—that is, the intellectual origin of our cognitions*. But Kant failed to see that experience is as intellectual as intuition, and that intuition is not a mere power of forming conceptions, but a cognition of things as they truly exist. His *a priori* ideas are far more fanciful things than the general principles assumed by dogmatism. Kantianism has this only in its favor, that it contains more of truth than any of those systems of pure idealism to which it gave rise, and which agree with it in substituting conceptions for cognitions.

Associationalism. Materialism. Sensationalism.

Finally, associationalism presents *the weakest and most unsatisfactory account possible of our original perceptions and beliefs*. This form of error is plausible and captivating, especially when divorced from the grosser schemes with which it is commonly united. Materialism, which confounds molecular with psychical activity, and sensationalism, which confounds all thought and feeling with bodily impressions and their reproduction, inevitably ally themselves with associationalism, which confounds the objective laws of inference with the subjective laws of the succession of our ideas.

The weakness of all these modes of philosophy is nowhere more apparent than in their attempt to account for the radical conceptions and convictions of the mind. The harder one tries to form such notions as those of space and time and substance and power, from the association of "feelings, or impressions, or states of consciousness," the more he will realize the impossibility of doing so. And the more one endeavors to identify our conviction of logical necessity with that of an acquired psychical necessity governing the sequence of our thoughts, the more he will find that logical necessity pertains to objects, and is truly perceived by the mind viewing them.

The convictions that all things must exist in space and time; that power must reside in substance; that action comes only from power, and change only from action; that nothing can be existent and non-existent at the same time, and that a thing must be either existent or non-existent; that the nature of space admits geometrical figures and relations, and necessitates certain connections between them; and that quantity, in like manner, admits and necessitates arithmetical relations, — these, and many other principles, irresistibly assert themselves as simple, ultimate, objective verities.

INDEX.

NOTE.

This index may be useful to students as a vocabulary of philosophical terms; these are explained here and there throughout the book. It will also enable one to trace the interpenetration of doctrines and discussions. But students who may desire to make specific examination of authorities will find the "Human Mind" more helpful than the present manual. This index simply shows when and how often writers have been quoted and referred to in "Mental Science."

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